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The impact of student teachers upon the attitude and achievement of high school students was studied from 1962 to 1966 to determine the adequacy of student teachers. An experimental group was composed of a representative sample of students (grades 10-12) and graduates who attended the University of Nebraska's University High School and were taught entirely by supervised student teachers. A control group was composed of students and graduates from Nebraska high schools staffed by regular teachers. An attitude scale was created to measure the affective domain, and scores on the National Merit Scholarship Qualifying Test (NMSQT) along with university grade point averages were used as measures of high school and post high school cognitive achievement. Analysis of covariance was used in making the comparison, with intelligence quotient and socioeconomic level being the covariants. Results indicated that students taught by student teachers reached a higher level of achievement than did students taught by regular teachers. Therefore, instruction provided by supervised student teachers seemed to be no less effective than that provided by experienced teachers. Also, the impact of student teachers upon student attitude toward school and teachers was as positive as that of regular teachers and is greatest and most positive in close student-teacher contact. (Included are a list of 34 tables and five appendixes). (Author/SM)

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THE IMPACT OF STUDENT TEACHERS UPON THE ATTITUDE AND ACHIEVEMENT OF HIGH SCHOOL STUDENTS

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Alan T. Seagren,
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CHAPTER I. STATEMENT OF THE PROBLEM

The number of teachers needed to staff secondary schools in America has increased steadily over the past decade. With the need for an increased number of teachers, more young people have been entering teacher training institutions. As a result, almost every one of these institutions has been forced to find more public schools willing to provide experiences for student teachers. Nearly every public school system located in or near a teacher training institution has been asked to accept student teachers into its schools.

Concurrently, many colleges and universities have discontinued their laboratory schools as student teacher training centers and have used them for demonstration, research or other related functions. Hence, an even greater number of student teachers have been placed in off-campus situations. Some colleges and universities have developed internship programs and five-year training programs, which in addition to their other accomplishments, may temporarily ease the problem of the large numbers of student teachers.

The basic goal of a board of education in any school system (and of all school personnel, for that matter) is to provide the best possible educational program for all young people of school age within the district. Fortunately, most school officials have seen the acceptance of student teachers as a professional responsibility falling within the scope of the above goal. In addition, many school districts feel the student teaching program offers certain advantages: (1) an effective way to identify outstanding prospective teachers, (2) an opportunity to provide more individualized instruction, and (3) a way to improve teaching staffs by providing supervisory responsibilities for many classroom teachers and by providing additional human resources to aid in instruction.

Most schools have accepted student teachers willingly in specialized areas or in laboratory courses such as physical education, industrial arts, art, and music. Student teachers may be used in assisting roles in these areas where administrators and boards of education frequently feel four hands are better than two. However, in English, mathematics, science, social studies and foreign languages some schools have been concerned with the quality of instruction provided for their students by student teachers as opposed to that provided by their regular staff members. Consequently, they are reluctant to accept student teachers in their schools.

As teacher training institutions have asked the public schools to accept increased numbers of student teachers, officials of these schools have legitimately asked, "What impact do student teachers have on the students, both in terms of achievement and attitude?" This question has been asked primarily about the academic areas where the effect of the student teacher perhaps is not so easily assessed as in specialized or laboratory areas. School officials are being negligent in fulfilling their basic functions if they do not request of teacher training institutions, some assurance that the student teacher is not a hindrance to the learning process. This study is a response to such a request.

Design of the Study

Statement of Purpose

Because of the need for investigation to determine the adequacy of student teachers used in the classroom as compared to the adequacy of regularly-employed teachers, the investigators resolved to determine the impact of student teachers on the attitude and achievement of pupils in secondary schools. University High School, where all of the instruction was given by student teachers, and various representative Nebraska high schools, where the instruction was given by full-time regular teachers, were the two populations considered.

Brief Design

The study was designed in two parts. In the first part, impact on student attitude was investigated by an attitude scale developed specifically for the study. In the second part, impact on student achievement was studied through the use of National Merit Scholarship Qualifying Test scores and university grade point averages.

Samples

In the portion of the study concerned with student attitude, the experimental group was grades ten through twelve of University High School on the campus of the University of Nebraska. Here the students were taught exclusively by student teachers under the supervision of subject matter specialists.[1] The control group was the high school population of a Nebraska school selected on the advice of various Nebraska State Department of Education officials and University of Nebraska staff members as representative of schools of its size in the state.

In the portion of the study dealing with achievement of students, the experimental group was a sample of University High School graduates for the years 1962-1966. The control group consisted of high school graduates (1962-1966) from nine Nebraska high schools in the Lincoln-Omaha area, chosen for their similarity to University High School in size, course offering, accredita ation and class size.

In both control groups, the students were taught exclusively by regular full-time teachers; both experimental groups were taught by student teachers under supervision.

Description of the experimental group

Since the students at University High School were taught only by student teachers, it was determined that this school would provide a setting isolating the student teacher variable for investigation. Student teachers began teaching the first day and continued throughout a semester. This setting provided an experimental situation in which to test the quality of instruction provided by student teachers, since there were no classes taught by anyone else. It was the opinion of the investigators that a study of University High School students could provide evidence of a longitudinal nature concerning the impact of student teachers on high school students.

While University High School was unique in that student teachers were used as faculty, there was a sincere attempt to maintain a school population which was a representative sample of youth in other Nebraska schools. Further, there was an attempt to offer a curriculum similar to that which student teachers would find upon placement in the schools of Nebraska. The crucial difference between University High School and the image usually associated with "laboratory schools" was that the school was primarily a student teacher center. Little or no research was done in the school. Innovative programs were sometimes introduced but they were almost never tested in the school, the school officials felt such endeavors would be better conducted by experienced teachers.

A brief description of University High School, its student body and its curriculum follows so a comparison of this institution to control group institutions might be made.

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[1] All supervision of student teachers at the University of Nebraska was done by subject-matter specialists rather than by generalists. This situation existed both in the university high School and in the public schools associated with the University's student teaching program. The same content specialists supervised both in and out of the campus school.

Selection of students for University High School. The student body of University High School was composed of students selected by the process described in the _Supervisor's Handbook_. A deliberate attempt was made to have a typical, representative student body, in order to provide as realistic a situation as possible for student teachers. The following procedures are outlined relative to selection procedures:

> In line with the purpose and function of University High School, the first objective of the selection process is to select a student body that represents as normal a cross section of Nebraska youth and as typical a student body as possible. The following factors are considered:
>
> 1. Academic ability
> 2. Educational goals
> 3. Family background
> 4. Motivation
> 5. Socio-economic level
>
> As a training school, University High School has no greater responsibility for taking special cases than any other secondary school. It is not the function of any secondary school to handle severe emotional cases, and in spite of the fact that University High School is a private school (at least in the sense of having a student body whose membership may be restricted), the school is not staffed to handle such students. These are, however, the only students who will be excluded from attendance at University High School because of personal characteristics.
>
> Most of the students who attend the school come from the city of Lincoln and the rural areas immediately surrounding Lincoln. The student body, therefore, represents a wide range of abilities and interests, The backgrounds of the students are probably as varied as would be found in any Nebraska public school of its size. This is a highly significant factor, considering the needs of a student teaching situation.[1]

Cost of attending University High School. The minimal cost of attending University High School should not have been a determining factor in attendance. To the knowledge of the administrators in 1966, no student had been denied the privilege of attending University High School because of lack of funds.

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[1] University High School, _Supervisor's Handbook_, University of Nebraska, 1966, pp. 11-12.

University High School is an integral part of the University of Nebraska and is under the control of the Board of Regents. There is no tuition, but a small fee is charged each semester which varies according to the kind of courses the student may be carrying. Six dollars per semester represents the average fee per student. For pupils from rural districts who are entitled to free high school tuition under state law, this fee will be paid through the county superintendent of the district in which they reside.

Textbooks are furnished free. Pupils are expected to buy their own individual supplies of notebooks, paper, pens and pencils and to pay for breakage of laboratory materials and for lost books or unnecessary damage done to them.[2]

Accreditation. University High School was accredited by the State Department of Education as a Class A high school and by the North Central Association of Colleges and Secondary Schools.

Student body. The enrollment in University High School was held at about 250 students for the upper six grades. The enrollment for 1966-67 (the year in which the study was conducted) was:

Grade 7	24
Grade 8	24
Grade 9	40
Grade 10	55
Grade 11	55
Grade 12	55

An attempt was made to achieve a one-to-one boy-girl ratio. As mentioned previously, an attempt was also made to have a cross section of young people in terms of ability, family background, socio-economic level, and educational objectives.

Summary. University High School was unique from the traditional image of a university laboratory school in two ways: (1) instruction was provided exclusively by student teachers, and (2) the student body consisted of, as nearly as possible, a representative sample of Nebraska youth, rather than children of professors. Table I illustrates the wide range of occupational backgrounds of parents of the children attending the school in comparison to parents of those children attending the Sample B control school. With the major exception of the "professional" category, the two schools were remarkably similar. The Table indicates

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[2] Ibid., p. 12.

21 per cent of the University High School students were from homes where the father was a "professional," as opposed to six per cent in the control group school. However, only five per cent of the students in the University High School sample were children of college professors; the remaining 16 per cent were children of professionals employed in the city of Lincoln who were not connected with the University.

Description of the Control Groups

The control group used in the attitude portion of the study (Sample B) was a Class A accredited Nebraska high school, chosen because it had been described as representative by various officials of the Nebraska State Department of Education. It was described as a good school with small classes, an average enrollment nearly the same as University High School (average enrollment over a six-year period was 211.5 in the upper four grades as compared to 206.5 for University High School), a good scholarship record, and an administration willing to cooperate in research. The investigators felt this high school would be comparable to University High School on the important criteria of achievement, size and background of students. Tables I and II compare the two schools on socio-economic background of students based on father's occupation as classified by the Dictionary of Occupational Titles and on measured I.Q. of the students with scores reduced to Z-scores to compensate for the differences in tests given in the different schools.[1]

The control group used in the achievement portion of the study consisted of graduates of nine high schools in the Lincoln-Omaha area, excluding metropolitan Lincoln and Omaha. Schools were selected on the basis of class size, low pupil-teacher ratio, and enrollment as being comparable to University High School. Additional factors influencing the selection of the nine schools were frequency and regularity of the administration of the National Merit Scholarship Qualifying Tests and a high proportion of graduates attending the University of Nebraska. Since the selected schools grouped well on these criteria, and since there appeared to be a logical break in information after these nine schools, it was decided to limit the sample to these schools

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[1] The investigators recognize the weakness which using several different I.Q. tests presents; however, in view of the longitudinal nature of the study (graduating seniors from 1962-66, as well as currently enrolled students), it was impossible to administer a similar test to each student. Therefore, the decision was made to use the available data and to convert it, in so far as possible, to a similar scale. In this case, the Z-score was selected.

TABLE I

A COMPARATIVE LISTING OF FATHER'S OCCUPATION FOR UNIVERSITY HIGH SCHOOL STUDENTS (SAMPLE A) AND THE STUDENTS OF A REPRESENTATIVE NEBRASKA HIGH SCHOOL (SAMPLE B)

Occupational Category		Per Cent University High School Sample A	Per Cent Representative High School Sample B
1	Professional	21	6
2	Semi-professional	0	0
3	Managerial or official	10	15
4	Clerical and kindred	10	12
5	Sales and kindred	8	7
6	Domestic service	2	1
7	Protective and military	8	1
8	Farm related	19	21
9	Skilled	3	4
10	Semi-skilled	14	13
11	Unskilled	5	18
12	Homemaking[1]	0	1
13	Retired	0	1
14	Deceased[2]	0	0

[1] Category 12 (Homemaking) was used when parents had been separated for a considerable length of time, the child was living with the mother, who was primarily a homemaker, and little contact with the father was possible.

[2] Category 14 (Deceased) was used when the father was dead and the mother was not employed outside the home.

The occupational categories are used by the University of Nebraska as a part of admission information; they are summarized from the Dictionary of Occupational Titles.

TABLE II

A COMPARATIVE LISTING OF I.Q. SCORES (STANDARD Z-SCORES) OF UNIVERSITY HIGH SCHOOL STUDENTS (SAMPLE A) AND THE STUDENTS OF A REPRESENTATIVE NEBRASKA HIGH SCHOOL (SAMPLE B)

Z-Score	Per Cent University High School Sample A	Per Cent Representative High School Sample B
+2.51-(+)3.00	2	0
+2.01-(+)2.50	12	1
+1.51-(+)2.00	19	11
+1.01-(+)1.50	19	21
+0.51-(+)1.00	19	29
+0.00-(+)0.50	16	23
-0.01-(-)0.50	5	9
-0.51-(-)1.00	2	5
-1.01-(-)1.50	2	1
-1.51-(-)2.00	3	0
-2.01-(-)2.50	1	0
-2.51-(-)3.00	0	0

Table III indicates average enrollment and teacher-pupil ratios for all the schools in the study. Table IV is a summary of curriculum information for the eleven schools including University High School and the control group schools for both portions of the study. A more detailed report is included in Appendices A and B.

In spite of the attempt by University High School officials to obtain a stratified, representative population, Table I and II indicate a lack of similarity, primarily in the "professional" category, between the University High School student body and that of the representative school. Additionally, there is a significant variation in intelligence between the two schools. Therefore, it was determined that these two variables should be statistically controlled in any comparison of the groups.

Regarding the two populations in the achievement portion of the study, Tables V, VI and VII are submitted as indications of the similarities and differences between them. Table V, a listing of I.Q.'s by standard Z-score, indicates some variance, and Table VI, which indicates percentages of the populations for each occupational category, indicates relatively wide disparity between the groups. The variance was anticipated by the investigators, and a statistical technique (analysis of covariance) was employed to control these differences and put the two populations on a similar plane through statistical manipulation.

Table VII is a comparative listing of University majors for the two populations. The populations exhibited relative similarity, with the major exception of agriculture.

Since this study is concerned with teachers who taught in control and experimental schools and their impact on the students of those schools, it is appropriate to examine the qualifications of those teachers, their teaching loads, their experience, and the professional certification they hold. Table VIII shows the number and percentage of teachers teaching in their major field of study for the control groups. From Table VIII it can be seen that the overall percentage of teachers teaching in their major field was 72 per cent and the range was from 62 per cent to 82 per cent.

Table IX indicates the teaching load of these teachers with an overall mean for the six-year period of 3.56 periods per teacher and 76.56 students.

Table X shows the mean number of years of teacher experience for each school for each year. The over-all mean for all teachers for all schools was 11.4 years of experience and the range was from 7.3 to 19.2 years.

The type of certificate held by the teachers in the schools is shown in Table XI. The most common type of certificate was the initial teaching certificate. It was most encouraging to note the percentage of teachers holding the provisional certificate was small.

TABLE III

A COMPARATIVE LISTING OF AVERAGES FOR THE YEARS 1961-62 TO 1966-67 INCLUSIVE FOR ENROLLMENT (GRADES 10-12), TEACHER-PUPIL RATIO AND NUMBER OF SECONDARY TEACHERS FOR THE ELEVEN NEBRASKA HIGH SCHOOLS INCLUDED IN THE STUDY

	Average Enrollment (Grades 10-12)	Average No. of Secondary Teachers	Average Pupil-Teacher Ratio[1]
University High School Samples A and C	174.2	-	-[2]
Sample B	211.5	16.5 (10-12)	13.13
Sample D_1	232.0	35.5 (9-12)	16.6
Sample D_2	114.7	11.5 (9-12)	13.4
Sample D_3	164.5	18.0 (7-12)	14.1
Sample D_4	126.2	15.5 (9-12)	14.8
Sample D_5	315.5	35.9 (7-12)	19.5
Sample D_6	273.5	26.3 (9-12)	17.4
Sample D_7	228.2	18.3 (9-12)	19.9
Sample D_8	196.2	16.7 (9-12)	15.9
Sample D_9	135.0	14.5 (9-12)	20.2

[1] Pupil-teacher ratio was calculated on the total enrollment taught by the secondary teachers in all grades in the school. For example, in a school organized on a K-6, 7-12 plan, the number of teachers on the secondary level was divided into the total enrollment in grades 7-12.

[2] The unique organization of University High School, with subject-matter supervisors listed as teaching staff and the actual teaching done by student teachers, made it impossible to calculate a realistic figure for the pupil-teacher ratio.

TABLE IV

ENROLLMENT BY CURRICULAR AREA FOR THE ELEVEN SCHOOLS IN THE STUDY (MEANS[1] FOR SIX YEARS)

Subject	University High School	Control High Schools
Language Arts		
English	166.2	190.5
Speech and Public Speaking	35.0	29.3
Dramatics and Debate	12.8	7.3
Journalism	31.5	12.8
Languages		
French I	14.2	42.0[2]
French II	12.0	12.0[2]
French III	16.0	
German I	6.0	23.7[4]
German II		21.0[3]
German III		29.0[2]
German IV		5.5[2]
Latin I	9.0	15.0[3]
Latin II	14.2	15.0[3]
Latin III		23.0[2]
Latin IV		9.0[2]
Spanish I	24.2	13.9
Spanish II	16.4	15.0
Spanish III		5.6[3]
Social Studies		
World History	54.7	61.9
U.S. History	55.0	57.9
Modern or American Problems	52.3	51.4
Sociology	37.0	56.0[2]
Psychology	22.2	
International Relations	25.0	
Comparative Political Systems	27.2	
Modern History Seminar	13.5	
Civics		51.5
Economics		36.0
Mathematics		
General Math I		9.2
General Math II		26.2
Beginning Algebra	6.2	28.1
Advanced Algebra	28.3	33.3
Beginning Geometry	58.2	46.0
Trigonometry	14.0	14.3
College Level Math	16.0	12.5
Science		
Biology	51.5	76.7
Chemistry	33.0	30.2
Physics	19.3	17.0
Physical Sciences		12.5[4]

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[1] Means equal total enrollment divided by the number of schools offering the course.

[2] Only one school offered this course.

[3] Only two schools offered this course.

[4] Only three schools offered this course.

TABLE V

A COMPARATIVE LISTING OF I.Q. SCORES (STANDARD Z-SCORES) OF UNIVERSITY HIGH SCHOOL GRADUATES (SAMPLE C) AND THE GRADUATES OF NINE REPRESENTATIVE NEBRASKA HIGH SCHOOLS (SAMPLE D)

Z-Score	Per Cent University High School Sample C	Per Cent Representative High Schools Sample D
+2.51-(+)3.00	0	1
+2.01-(+)2.50	3	1
+1.51-(+)2.00	8	4
+1.01-(+)1.50	11	12
+0.51-(+)1.00	21	23
+0.00-(+)0.50	22	30
-0.01-(-)0.50	23	15
-0.51-(-)1.00	10	9
-1.01-(-)1.50	1	3
-1.51-(-)2.00	1	1
-2.01-(-)2.50	0	0
-2.51-(-)3.00	0	1

TABLE VI

A COMPARATIVE LISTING OF OCCUPATIONAL CATEGORIES OF UNIVERSITY HIGH SCHOOL GRADUATES (SAMPLE C) AND THE GRADUATES OF NINE NEBRASKA HIGH SCHOOLS (SAMPLE D)

	Category	Per Cent University High School Sample C	Per Cent Representative High Schools Sample D
1	Professional	21	10
2	Semi-professional	1	0
3	Managerial and official	20	16
4	Clerical and kindred	5	2
5	Sales and kindred	11	6
6	Domestic service	0	0
7	Protective and military	3	0
8	Farm related	10	49
9	Skilled	6	3
10	Semi-skilled	19	7
11	Unskilled	1	5
12	Homemaking	0	1
13	Retired	0	0
14	Deceased	1	1

TABLE VII

A COMPARATIVE LISTING OF UNIVERSITY MAJOR FOR UNIVERSITY HIGH SCHOOL GRADUATES (SAMPLE C) AND THE GRADUATES OF NINE NEBRASKA HIGH SCHOOLS (SAMPLE D)

University Major	Per Cent University High School Sample C	Per Cent Representative High Schools Sample D
Agriculture	1	13
Architecture	8	2
Art	4	1
Business	12	16
Economics	1	2
Elementary Education	16	7
Engineering	3	5
English and Speech	7	6
General Registration	0	1
Home Economics	12	8
Industrial Arts	1	0
Journalism	4	2
Languages	4	2
Law	0	1
Mathematics	3	4
Medicine and Dentistry	6	5
Music	5	2
Pharmacy	2	4
Physical and Biological Science	3	7
Physical Education	2	2
Social Sciences	12	10

TABLE VIII

RATIO OF TEACHERS TEACHING IN MAJOR FIELD OF STUDY TO TOTAL NUMBER OF TEACHERS TEACHING IN ACADEMIC FIELD FOR SAMPLE B AND SAMPLE D FOR THE YEARS 1961-62 TO 1966-67

Academic Field		Ratio	
English	59/86	=	.686
Social Studies	49/60	=	.817
Math	28/45	=	.622
Science	42/55	=	.764

TABLE IX

MEAN TEACHING LOADS BY OVERALL NUMBER OF PUPILS AND NUMBER OF CLASS PERIODS PER DAY FOR SAMPLE B AND THE SAMPLES D_1 TO D_9 FOR THE YEARS 1961-62 TO 1966-67

Year	No. Periods	No. Pupils
1961-62	3.55	77.4
1962-63	3.61	80.47
1963-64	3.76	83.75
1964-65	3.52	77.4
1965-66	3.35	63.3
1966-67	3.55	76.9

TABLE X

MEAN NUMBER OF YEARS OF EXPERIENCE, BY YEAR AND SCHOOL, FOR SAMPLE B AND SAMPLES D_1 TO D_9

Year	B	D_1	D_2	D_3	D_4	D_5	D_6	D_7	D_8	D_9	Mean	Range
1961-62	13.9	13.4	9.5	12.0	12.6	8.1	14.1	9.5	8.9	18.9	12.0	8.1-18.9
1962-63	13.7	11.1	11.0	13.6	10.8	8.3	9.4	12.3	8.9	17.7	11.7	8.3-17.1
1963-64	12.9	14.2	10.8	11.2	10.3	9.0	10.4	12.3	10.9	18.0	12.0	9.0-18.0
1964-65	15.0	12.5	10.0	10.3	8.5	7.4	10.3	7.5	9.2	19.2	11.0	7.4-19.2
1965-66	15.1	10.3	9.5	11.8	8.9	7.3	9.5	8.8	10.9	14.5	10.7	7.3-15.1
1966-67	14.1	10.9	10.5	11.0	8.9	7.9	10.4	9.9	10.4	16.1	11.0	7.9-16.1

TABLE XI

TOTAL NUMBER OF TEACHERS HOLDING INITIAL, PROFESSIONAL, OR PROVISIONAL CERTIFICATES IN SAMPLE B AND SAMPLES D_1 TO D_9 FOR THE YEARS 1961-62 TO 1966-67

B			D_1			D_2			D_3			D_4			D_5			D_6			D_7			D_8			D_9		
Init.	Prof.	Prov.	Init.	Prof.	Prov.	Init.	Prof.	Prov.	Init.	Prof.	Prov.	Init.	Prof.	Prov.	Init.	Prof.	Prov.	Init.	Prof.	Prov.	Init.	Prof.	Prov.	Init.	Prof.	Prov.	Init.	Prof.	Prov.
8	6	1	27	5	0	16	4	1	18	4	1	10	7	2	29	9	3	18	5	0	17	6	1	16	7	0	11	4	1
53.3	40.0	6.7	84.4	15.6	0	76.2	19.0	4.8	78.3	17.4	4.3	52.6	36.9	10.5	70.7	22.0	7.3	78.3	21.7	0	70.8	25.0	4.2	69.6	30.4	0	68.8	25.0	6.2

Summary. Teachers in these schools were teaching in their major field in nearly three-fourths of the cases; they had reasonable teaching loads and were exposed to small numbers of students. Most of the teachers had a number of years of experience and held the initial or professional certificate.

Explanation of Sample Groups

Sample A. Students presently enrolled in grades ten through twelve in University High School who have attended University High School for a majority of their post-elementary education.

Sample B. Students presently enrolled in grades ten through twelve in a "Class A" accredited high school with similar size and course offering to that of University High School.

Sample C. The 1962, 1963, 1964, 1965, and 1966 graduates of University High School who are attending, have attended, or have graduated from the University of Nebraska.

Sample D. The 1962, 1963, 1964, 1965, and 1966 graduates from nine "Class A" accredited schools of comparable size and course offering to that of University High School who are attending, have attended or have graduated from the University of Nebraska.

No attempt was made to provide for equal sample sizes; a statistical technique was chosen to compensate for the effects of an unequal N. In each case, the total population was used in an attempt to eliminate possible sampling bias.

Problem

The purpose of this study was to assess the impact that student teachers, supervised by subject-matter specialists, had upon students as compared with the impact of regularly employed teachers.

More specifically, the purpose of this study was to:

1. Compare the total attitude toward the school situation of Samples A and B.
2. Compare the attitude toward school of students in Samples A and B.
3. Compare the attitude toward teachers of students in Samples A and B.
4. Compare the attitude toward the interpersonal relationships that exist between students and teachers in Samples A and B.

Design

Students enrolled in University High School (Sample A) and graduates of University High School in 1962, 1963, 1964, 1965, and 1966 (Sample C) composed the experimental groups. Students who had not had a majority of their secondary education at University High School were excluded.

Students in the control groups came from schools judged by the Nebraska State Department of Education as representative "Class A" accredited high schools in the Lincoln-Omaha area which were equivalent in size and curriculum to University High School (Samples B and D).

Sample groups were statistically controlled regarding intelligence and occupation of parent, while year graduated from high school, class if presently enrolled in high school, and sex were treated through separate analyses. Achievement measures were scores from the National Merit Scholarship Qualifying Test and university grade point average. Since there was some variation in instruments used to measure intelligence among the schools in the samples, I.Q. scores were converted to standard z-scores to make the comparison more valid. Socio-economic level was based on D.O.T. categories and determined by father's occupation or, in the absence of the father, that of the primary wage earner.

Student attitude was measured by a 65-item attitude scale especially developed for this study. (See Appendix E for a copy of this instrument.) The instrument contains items that measure student attitude in the five areas under consideration.

The variables for both portions of the study were indicated in the hypotheses.

It is appropriate this time to state a major limitation of this study, that is, the different sizes of the communities from which the control and experimental populations were taken. Lincoln, a city of approximately 150,000, was the location of University High School, and the control group was selected from communities of 10,000 or less. An attempt to include a population from the public schools in Lincoln as an additional control group, was not possible during the time span permitted for the study. The consideration of this additional population is suggested in the recommendations for further study. The authors realize that this study is not complete until such an investigation is made.

The schools considered, however, were similar to University High School in many ways, perhaps more so than the large schools of metropolitan Lincoln. The classes in the control group schools were smaller than 30 (some averaged as few as 19 students) as were those in University High School. Average class size for Lincoln high schools is 37. The curriculum was relatively similar in the control group schools and University High School, as indicated in Table IV, while the Lincoln schools tend to offer a number of highly specialized courses in addition to those offered at University High School (examples: mathematics classes beyond trigonometry, architectural courses, several foreign language programs of over five years duration). The investigators feel the most serious limitation posed by a control group of students from small communities is one of cultural setting and rural versus urban orientation. They point out that this is a major limitation of the study.

Basic Assumptions

1. Academic success in college reflects to some degree the quality of preparation received on the secondary level.
2. Academic success in college is some indication of the quality of instruction given by regular teachers or student teachers at the secondary level.
3. The attitude of students toward school is, in some measure, due to the influence of student teachers or teachers.
4. Standarized test scores provide a measure of student achievement which reflect the quality of instruction given by teachers or student teachers.
5. Major indications of teacher effectiveness are revealed by the cognitive and affective aspects of student development.

Tools

In order to collect data for the study, the following instruments and elements were employed. They are discussed in Chapter II.

1. Attitude scale.
2. National Merit Scholarship Qualifying Test.
3. Grade Point Average.
4. Intelligence Tests.
5. Socio-economic Level.

Limitations

Although the investigators confronted many of the common limitations encountered in a study of this nature, there are a number of unique limitations which may have special significance in terms of results. One should be cognizant of these limitations in interpreting and applying the results of this study for the generation of new ideas based on this research. It is assumed that the limitations here mentioned have had varying effects upon the study. Some of the effects of these limitations may be negligible while others may represent major weaknesses.

1. Since University High School was the only school in the study where all of the teaching was done by student teachers, there is a possibility that the University High School students may be only partially representative of the population of students taught largely by student teachers.

2. Although the attitude scale employed in this study was designed to measure attitudes relating to the total school experience, it is only a measure of attitude, just one area of the affective domain. Further, the measurement of attitude within the school setting is representative of only one segment of the total attitude spectrum.

3. While the courses of study were essentially the same for each of the schools in the study, the academic emphasis could have varied substantially. No effort was made to measure it.

4. University High School was located in Lincoln, Nebraska, a town of approximately 150,000 people; towns of less than 10,000 people which the other schools in the study were located in, may be a limiting factor because of the rural versus urban orientation of the students, in spite of statistical allowances for socio-economic factors.

5. The college achievement part of the study confined itself entirely to students who had attended or were attending the University of Nebraska.

6. This study used the occupation of the primary wage earner as the only indication of socio-economic level.

7. The populations in the achievement portion were restricted to students for whom all of the necessary data could be compiled (National Merit Scholarship Qualifying Test, I.Q., occupation of parent, and university grade point average).

8. Certain biasing effects may have resulted from the selective nature of the University High School student body. The unusually large percentage of children of professionals is one indication; I.Q. scores are another. While statistical methods were employed to control the above variables, it cannot be safely assumed that they were completely eliminated.

9. Because of the nature of the student teaching program at the University of Nebraska where each student teacher has the responsibility for a single class through an entire semester and where all supervision is done by subject-matter specialists, it is recognized that the results of this study cannot necessarily be generalized to all types of student teaching programs.

Definition of Terms

Achievement. (A) For the purpose of this study, it was necessary to measure the cumulative high school achievement of the subjects in each of the major academic areas, including English, mathematics, social studies and science. These, together with a composite score and a word usage score, formed the indexes of high school achievement for the populations.

(B) University grade point average was accepted as a manifestation of educational achievement at the university level.

Attitude. Attitude, in this instance, is that factor measured by the attitude scale constructed especially for this study, which examines a student's responses to the school situation, irrespective of home, church, community, and other out-of-school factors.

Intelligence. In this study, intelligence is represented by a score received on a standard test of intelligence, that score being converted to a standard z-score for analysis.

Socio-Economic level. The occupation of the father or primary wage earner in the family was the sole basis for determination of socio-economic level.

Student teacher. A student teacher, in terms of this study, is a college student in his senior year, teaching one or more classes in a secondary school under the supervision of a university staff member.

CHAPTER II. PROCEDURES FOR THE STUDY

A basic assumption of this study was that major indications of teacher effectiveness are revealed by the cognitive and affective aspects of student development. As measures of the affective domain, researchers traditionally employ personality tests, attitudinal scales, and other behavioral inventories. In the cognitive domain, measures of achievement are commonly used as tools for the determination of teacher effectiveness.

Because of the concentration of the affeetive portion of this study on student attitude toward school and teachers, an attitude scale was used rather than other affective measures. Although standardized attitude measures were available, it was felt that none fit the requirements of this study. For this reason, the investigators determined to develop and standardize an instrument suitable to the needs of the study and to the populations being investigated.

Measurement of Student Attitude

In selecting an appropriate model for the construction of an instrument for measuring attitude, a number of factors were given primary consideration. Among these factors were: precision of the instrument, its utility in terms of construction and administration time, the appropriateness of its application to this study. A review of literature in the area of attitude scale construction indicated that several individuals were generally accepted as authorities in this area. The most widely accepted models were those developed by Thurstone, Guttman and Likert. Most studies show these models equally satisfactory in a number of situations; however, their application to unique situations demands that their strengths and weaknesses be considered with the objectives of the particular situation in mind.

Thurstone Model

Thurstone was among the first to develop attitude scales. His judgmental model scales the items on a psychological continuum, assumes items to be non-monotonic, and employs judges in calibrating opinions on equal-appearing intervals. Several hundred statements are gathered; judges rate the extent to which the item represents a positive or negative attitude. Following the judges' ratings, an index of dispersion of items on the scale is computed, ordinarily the semi-interquartile range. Items with a high "Q" value (wide dispersion) are eliminated and remaining items are randomly arranged to form a tentative scale. Following this, the scale is administered to a sample population for statistical validation. To determine the relevance of each item, an index of agreement is computed between pairs of items; irrelevant items are eliminated. The remaining items form the attitude scale.

Likert Model

The Likert method employs techniques which are similar to standard test development. In contrast to the Thurstone approach, the Likert method does not require the estimation of scale values for items. Items for a Likert scale are monotonic; that is, the more favorable a person's attitude, the more likely it is that he will agree with an item. The subject's degree of agreement with an item is recorded on a five-point scale. The sum of a person's item scores is his attitude score. Items having a high correlation with the total score are retained for the final scale. A simple form of a Likert scale uses only agree-disagree response categories.

Guttman

The Guttman response approach can be considered a special case of the Likert approach. The major difference is that the total score must be perfectly correlated with the underlying scale scores in order to achieve a Guttman scale. This model poses a perfect index of reproducibility (one-to-one correspondence between subject scores and answer pattern) as the goal to strive for, but accepts scales with less than perfect reproducibility as practicable in many situations.

Summary

Each of the above techniques has been successfuly employed in many studies, each method being more useful in some situations than in others. Techniques employed in constructing this attitude scale were derived mainly from the Likert approach because of its appropriateness to the purposes of the study.

Development of the Attitude Scale

In beginning, a pool of 196 items was gathered from a variety of sources: existing attitude inventories, statements of educators, statements from students. Items were selected which appeared to apply most directly to the school situation and not to out-of-school elements of society, such as home, church, parents, occupation. The items were constructed to be of nearly similar length, although this was not feasible in every instance. Items with double negation were eliminated or rephrased; vocabulary and syntax were structured to the level of the subjects' understanding. This was done by a member of the university faculty proficient in the area of linguistics (as is the usual practice in the construction of a typical descriptive instrument). Items in the pool were placed in five major categories identified by the investigators on an a priori basis as significant for investigation. These categories are (1) attitude toward school, (2) attitude toward teachers, (3) attitude toward interpersonal relationships with teachers, (4) attitude toward peers, and (5) attitude toward self (a reflection of self adjustment within the school setting).

Items comprising the section on "attitude toward school" are items relating to the general school situation as opposed to the more specific areas represented by the other categories. This section was designed to reflect the students' over-all feeling about the worth of school, his interest in school work and studying, his acceptance of rules and grading, and other items relating to the school in general, exclusive of the elements contained in the remaining categories. Table XII lists the items which pertain to attitude toward school.

TABLE XII

ATTITUDE SCALE ITEMS FOR THE CATEGORY ATTITUDE TOWARD SCHOOL

Number	Item
4	Students are given enough freedom in selecting their school subjects.
8	I understand the reasons behind school rules and regulations.
11	My grades tend to encourage me in my school work.
12	The school has the information I want and need to know about colleges or other schools which offer post-high school work.
21	The grading system is an incentive to do my best work.
23	Time spent in school is worthwhile.
30	I seldom think about quitting school.
42	My school subjects interest me.
48	I like my subjects.
59	I enjoy coming to school.
60	I hate to miss school.
61	I would be going to school whether or not I had to.
63	My education is helping me to set and achieve my future goals.

The category containing items pertaining to attitude toward teachers is restricted to items reflecting the student's over-all attitude toward teachers rather than his attitude toward specific teachers. Table XIII lists the items for this category.

TABLE XIII

ATTITUDE SCALE ITEMS FOR THE CATEGORY ATTITUDE TOWARD TEACHERS

Number	Item
3	Teachers are concerned about whether or not a student has friends.
9	I feel that my teachers care about what students think about their subjects, their classroom work, and their assignments.
18	Teachers show respect and consideration for students under their supervision.
22	Teachers are aware of the opinions of students.
35	My teachers understand the problems of high school students.
37	Students respect teachers in my school.
44	Teachers make an effort to make new students feel welcome at school.
46	Teachers try to give students a chance to be successful in class.
49	Teachers are more likely to recognize students when they have done a good job than to criticize them for their shortcomings.
52	My teachers have helped me feel more confident about my ability.
62	I think my teachers enjoy teaching.

Items relating to interpersonal relationships between students and teachers are included in the next category. An attempt was made to include items which would elicit a response based on one-to-one relationships rather than general observations. Table XIV includes items for this category.

TABLE XIV

ATTITUDE SCALE ITEMS FOR THE CATEGORY ATTITUDE TOWARD THE RELATIONSHIPS BETWEEN STUDENTS AND TEACHERS

Number	Item
6	I can depend on a teacher to help me even if I should get into serious trouble.
7	I feel that I have a teacher who is definitely interested in me as an individual.
13	Teachers have talked with me about the things I do best.
14	I feel at ease when talking individually to my teachers.
17	At least one high school teacher has done something important especially for me as an individual.
19	I feel free to discuss a personal problem with one of my teachers.
25	Teachers speak to me outside of class.
27	I can talk about my real feelings about things with one of my teachers.
32	Teachers let me know when I have done a good job.
38	My teachers try to become personally acquainted with all the students in their classes.
41	My teachers miss me when I am absent from class.
45	My teachers think that I will be successful in my adult life.
50	I feel that there is a teacher or somebody that I can really talk with in school.
57	My teachers help me with any problems or questions I have.
58	My teachers are willing to spend extra time and effort to help me with my school work before or after regular school hours.
65	I find it easy to talk with my teachers about my problems.

The next category deals with peer-group relationships within the school setting. Table XV presents the items in this category.

TABLE XV

ATTITUDE SCALE ITEMS FOR THE CATEGORY ATTITUDE TOWARD PEERS

Number	Item
5	Students in my school make a special effort to make new students feel welcome.
24	To be accepted by a group of friends is one of the best things that can happen to a person.
33	I have several close friends at school who would stick by me even if I were in serious trouble.
36	My friends think that getting good grades in school is important.
40	I have a friend whom I can trust to keep my secrets.
43	Making friends at school is easy.
47	I look forward to seeing my friends at school.
55	I want to keep my grades about the same as those of the rest of the members of my group.

The final category is concerned with a measurement of the self concept within the school situation , how the individual views his own personal adjustment. Items for this category are presented in Table XVI.

TABLE XVI

ATTITUDE SCALE ITEMS FOR THE CATEGORY ATTITUDE TOWARD SELF

Number	Items
1	I generally do an acceptable job of studying.
10	I do as well as my classmates in school.
16	When I am in a "rut" at school, I know how to get out of it.
20	It is easy for me to make friends.
26	I feel that I have become sufficiently involved in school activities.
29	I usually feel comfortable and at ease when I am in my classes.
64	It is easy for me to get along with teachers and other students.

Following the initial assignment of items to categories, a group of experienced teachers was given a list of the items. They were asked to rate each item on a scale from one to nine, to the extent which they felt a positive (agree) response by a student truly represented a favorable attitude on the part of the student. This initial attempt at refinement was patterned after the Thurstone technique and an index of dispersion was computed on each item. The best items were selected, leaving 123 items in the pool; 73 items had been eliminated due to excessive dispersion. The remaining 123 items were presented in random order to a panel of judges for placement in categories. Each judge was given a list of the items in random order and asked to assign each item to one of five categories and to make comments about the appropriateness of any item. An index of agreement was again computed for the categorizations of the judges and items with poor agreement were eliminated. The remaining 65 items were placed in the five categories and arranged in random order for pilot administration of the scale. These 65 items were presented by category, in Tables XII, XIII, XIV, XV and XVI.

Since the items could be considered monotonic, it was decided to construct a Likert type scale for each category. The advantages of this type of scale are ease of administration and scoring. Indexes of reliability can be readily computed for each of the scales.

PILOT ADMINISTRATION

The pilot administration of the scale used the students of Seward High School, Seward, Nebraska, as subjects. This school was similar to the schools used in the project. Seward High School is a "Class A" accredited institution, enrolling approximately 350 students in grades ten through twelve. The economic and social structure of the community was considered representative of most eastern Nebraska communities. In these respects, Seward was an appropriate choice for the pilot administration of the scale.

Responses were analyzed following this pilot administration. A subjective look at the results indicated to the investigators, the principal and guidance counselor of Seward High School that a good measure of general attitude had been achieved. The Kuder-Richardson 21 formula (explained later in this chapter) was employed to estimate the reliability-homogeneity of each scale. The score for each category consisted of the number of negative responses to each item within the various categories. With the exception of one category, (Attitude Toward Peers), the KR-21 results were sufficiently high to indicate an adequate degree of internal consistency and/or reliability. The range was from a low of .670 to a high of .881 with the exception of the one category which had an r of .233. With the elimination of two items from this category, the r for Category D was raised to .610. This was considered minimally acceptable, and the scale was finalized. Table XVII lists the results of the KR-21 tests for each category after elimination of undesirable items.

The attitude scale in its final form is in Appendix C; instructions to administrators are in Appendix D.

TABLE XVII

RESULTS OF THE KR-21 TESTS FOR EACH ATTITUDE-SCALE CATEGORY

Category	M	M^2	s^2	K	KR-21
Total	40.470	1637.820	78.510	65	.814
A	9.910	98.210	2.450	13	.811
B	7.849	61.606	6.260	11	.881
C	8.332	69.422	10.860	16	.671
D	4.833	23.599	4.044	8	.610
E	5.034	25.341	2.252	7	.766

Measurement of the Cognitive Domain

To ascertain longitudinal development of student achievement, it is necessary to find appropriate assessments which would be common to all students in the sample. The investigators were concerned with both (a) immediate achievement at the high school level and (b) longevity of this achievement as exhibited by later educational pursuits at college or university level.

High School Achievement

Various tests of high school achievement were surveyed to find an adequate measure; the investigation focused primarily upon instruments nationally used and recognized, standardized and well suited to the population used in the study. The National Merit Scholarship Qualifying Test was selected because it met these criteria and was widely used among schools considered for the study.

The National Merit Scholarship Qualifying Test is concerned with the primary areas of the high school curriculum rather than general factors of intelligence, and it provides "a broader coverage of educational skills than do aptitude tests."[1] It correlates well with other tests of educational development as indicated in Table XVIII.

The National Merit Scholarship Qualifying Test is a reflection of cumulative achievement of students in the school situation rather than a measure of the short-term outcome of a specific class; yet it does determine achievement in each of the major curriculum areas: English, mathematics, social studies, and science. It is a recognized prognostic tool, accepted by most leading colleges and universities, among them the University of Nebraska where subjects in the university achievement portion of the study began their post-high school education. Several studies have demonstrated the reliability of the National Merit Scholarship Qualifying Test as a prognostic tool, among them two studies reported by the National Merit Scholarship Corporation in its 1967 Interpretive Manual for Counselors and School Administrators. These studies showed that "(1) the selection score is the best over-all predictor of the freshman grade point average, and (2) the English usage score is almost as good a predictor of grade point average as the selection score." [2] Another study showed that "the higher a student's selection scores on the National Merit Scholarship Qualifying Test, the greater his chances of college graduation."[3] The reliability of the National Merit Scholarship

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[1] National Merit Scholarship Corporation, 1967 Interpretive Manual for Counselors and School Administrators, p. 18.

[2] Ibid, p. 15.

[3] Ibid, p. 15.

TABLE XVIII

CORRELATIONS BETWEEN THE NMSQT AND OTHER TESTS

TEST		CORRELATIONS	
		English Usage	Math Usage
Stanford Achievement:	Language	.74	
N=86	Mathematics		.59
Essential High School Content Battery:	English	.63	
N=86	Mathematics		.87
Iowa Tests of Educational Development:	Correctness of Expression	.58	
N=86	Quantitative Thinking		.79
American College Testing Program	English Usage	.78	
N=86	Mathematics Usage		.85
ETS Cooperative Tests	English-Mechanics of Expression	.77	
N=517	Elementary Algebra		.74

Qualifying Test according to the Kuder-Richardson 20 formula ranged from .83 to .97, and, according to the Spearman-Brown formula ranged from .84 to .97 on the odd-even coefficients for the tests.[1] Nebraska norms have been established for the National Merit Scholarship Qualifying Test by the University of Nebraska Examination Center, making its use most appropriate for the population groups in this study. (See Appendix E for Nebraska NMSQT norms.)

The combination of high reliability and significant validity together with the appropriateness of the test to the sample populations assured the investigators that the National Merit Scholarship Qualifying Test was both experimentally sound and fitting for the purposes of the study.

As a means of ascertaining the reliability of the National Merit Scholarship Qualifying Test scores to this population, correlations were run between the NMSQT sub-test scores and the composite scores with university grade point average for each subject in the study. These correlations are reported in Table XIX.

University Achievement

To determine the longevity of student achievement, it was necessary to obtain a sound criterion of post-high school achievement. Various possible criteria were surveyed: teacher-made tests, graduation or non-graduation, general administration of a standardized achievement test in different subject matter areas, university grade point average.

University grade point average was considered the most suitable criterion measure of post-high school achievement; it is recognized by institutions of higher learning and employers as a generally reliable index of academic standing. It is widely accepted as an indication of achievement and was readily available to the investigators.

Teacher-given tests were rejected because of their subjectivity, their tendency to reflect the halo effect, and the difficulty of their administration to large populations. Students attending college major in different academic areas, making comparisons based on the testing of all students in all subject matter areas inappropriate. This situation also makes the use of a common standardized achievement test inappropriate as a measure of post-high school achievement. Inter-major comparisons could not be reliably made among the members of the sample populations. Few subjects in the samples had graduated; had graduation been the index of success, the reduced sample size would have prohibited drawing sound statistically significant conclusions.

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[1] *Ibid*, pp. 10-11.

TABLE XIX

CORRELATIONS BETWEEN UNIVERSITY GRADE POINT AVERAGE AND INDIVIDUAL SUB-TEST AND COMPOSITE SCORES ON THE NATIONAL MERIT SCHOLARSHIP QUALIFYING TEST

Variable One	Variable Two	Coefficient of Correlation
Grade Point Average	English Sub-Test	.36040*
Grade Point Average	Mathematics Sub-Test	.33587*
Grade Point Average	Social Studies Sub-Test	.38578*
Grade Point Average	Science Sub-Test	.31634*
Grade Point Average	Word Usage Sub-Test	.40940*
Grade Point Average	Composite	.43204*

*$p < .01$

Statistical Techniques

Analysis of Covariance. Intact groups were taken as populations for this study. Since direct pairing of these groups would introduce the possibility of regression effects, it was necessary to choose a statistical method which would employ a process of indirect control to decrease within-group variability. The statistical method chosen for this purpose was analysis of covariance, since it was appropriate for the requirements of the study.

The independent variables which, in the opinion of the investigators, were most obviously going to affect the results of this study were intelligence and socio-economic level. Using the analysis of covariance technique, it was possible to control these variables statistically to give greater precision and to remove these potential sources of bias effecting the data.

Analysis of covariance is based on the assumption of linearity, of homogeniety and of regression. It is a proven technique which incorporates within its procedures the techniques of both analysis of variance and regression.

Kuder-Richardson 21. One of the most convenient methods of obtaining an approximate index of reliability is Kuder-Richardson 21. It can be used to estimate the reliability of items within categories as well as for the entire instrument. Moreover, it is an indication of the internal consistency of the items. The formula for computing r is as follows:

$$rxx = \left[\frac{k}{k-1}\right] \left[1 - \frac{\frac{mx-mx^2}{k}}{sx^2}\right]$$

Where k equals the number of subjects, sx equals the variance, and m equals the mean of the scores. (It should be noted that KR-21 assumes equal item popularities and provides a conservative estimate of reliability.)

Variables

Since the purpose of this study was to measure and compare the achievement (cognitive domain) and attitude (affective domain) of two groups, the following independent variables were identified as having potential bearing upon the results of these comparisons: (1) intelligence, (2) socio-economic level, (3) sex, and (4) year in school. Intelligence and socio-economic level were controlled by the statistical technique analysis of covariance to remove potential sources of bias and to increase the precision of the experimental comparisons. Sex and year in school were directly controlled by running separate analyses for males, females and for each class.

I.Q.'s were collected for each subject from existing records in their parent high schools. It was observed that the most popular time for administration of I.Q. tests was the ninth grade; therefore, the investigators decided to use a test taken as close to ninth grade as possible (a range from grade 8 to grade 10 was accepted). The following six separate tests of intelligence had been used by the high schools: Henmon-Nelson, Lorge-Thorndike, SRA Test of Educational Ability, California Test of Mental Maturity, Otis, and Kuhlman-Finch. Because of the differing means and standard deviations of these instruments, the scores were not directly comparable, and they were converted to standard z-scores for greater comparability.[1] Means and standard deviations for the tests were obtained from test manuals of the individual tests used. Wherever means and standard deviations varied from form to form or from year to year on the same test, care was taken to obtain appropriate conversion data. (See Table II for a comparative listing of z-scores for the groups.)

It was necessary to place socio-economic level on a numeric continuum to provide values for statistical treatment. The occupational code system of the University of Nebraska "Application for Admission" form was adapted from the Dictionary of Occupational Titles Classifications. It was felt this coding would be adequate to provide a numeric continuum for occupational classifications in this study. (See Table I for a comparative listing of the socio-economic levels of the two groups.)

CHAPTER III. COMPARISONS AND RESULTS

Possible Comparisons of Student Attitude

The following comparisons were made of student attitude measured by the attitude scale constructed for this study.

Comparison one. The attitude of students taught by student teachers as compared to the attitude of students taught by regularly employed teachers with regard to general attitude toward the entire school situation, including school, teachers, peers and self.

Comparison two. The attitude of students taught by student teachers as compared to the attitude of students taught by regularly employed teachers with regard to specific attitude toward school.

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[1] It is recognized that transformation to z-scores does not eliminate the fact that these are different measures of intelligence which should not be treated as one measure. However, since each I.Q. test has a heavy g saturation, for the purposes of this study, the various I.Q. tests have been treated as a single variable. Sample size would have been inadequate if the various I.Q. tests had not been combined and treated as a single variable.

Comparison three. The attitude of students taught by student teachers as compared to the attitude of students taught by regularly employed teachers with regard to attitude toward teachers.

Comparison four. The attitude of students taught by student teachers as compared to the attitude of students taught by regularly employed teachers with regard to interpersonal relationships between students and teachers.

Comparison five. The attitude of students taught by student teachers as compared to the attitude of students taught by regularly employed teachers with regard to relationship with their peers.

Comparison six. The attitude of students taught by student teachers as compared to the attitude of students taught by regularly employed teachers with regard to student self concept in relation to the school situation.

Results

Comparison one. An examination of Table XX (Total Index of Attitude) shows there is no significant difference between any of the groups compared with regard to total attitude as measured by the attitude scale created for this study. Comparisons were made between the two entire sample groups, between all males, between all females and for each of the three senior high school grades within the sample groups. No significant differences were found even when intelligence and socio-economic level were controlled statistically. This was also true when the unadjusted means were compared.

Comparison two. University High School students appeared to be significantly less positive in their attitude toward school than their control group counterparts as evidenced by the data reflected in Table XXI. This was true (a) for the entire group, (b) for the females and (c) for the twelfth graders. Other groups compared did not show significant differences. However, each of the differences for the three previous groups was significant at the .01 level. In every case, University High School students revealed less positive general attitude toward school even though this attitude was not significantly less positive from a statistical standpoint in all cases.

Comparison Three. Regarding attitude toward teachers, significant differences were found (a) for the total group ($p. < .05$), (b) for the males ($p. < .01$) and (c) for the eleventh graders ($p. < .01$), as indicated by Table XXII. University High School students appeared to be more positive in their attitudes toward teachers in every comparison but one, the twelfth graders, with the three comparisons above revealing statistically significant differences.

TABLE XX

RESULTS OF THE ANALYSES FOR THE TOTAL INDEX OF ATTITUDE

Category	Basis for Comparison	D.F.	F Ratio	Category Means or Adjusted Means	
Total Population	A. I.Q. Controlled	1-299	0.19	Uni	42.8757
				Other	43.3611
	B. Occupation Controlled	1-299	0.01	Uni	43.2154
				Other	43.0902
	C. Both Controlled	1-298	0.09	Uni	42.9494
				Other	43.3024
Males	A. I.Q. Controlled	1-142	1.13	Uni	43.8671
				Other	42.2199
	B. Occupation Controlled	1-142	2.27	Uni	44.2253
				Other	41.9523
	C. Both Controlled	1-141	1.50	Uni	44.0261
				Other	42.1011
Females	A. I.Q. Controlled	1-154	1.95	Uni	42.1444
				Other	44.3719
	B. Occupation Controlled	1-154	1.46	Uni	42.1646
				Other	44.2701
	C. Both Controlled	1-153	1.88	Uni	42.1261
				Other	44.3874
Tenth Grade	A. I.Q. Controlled	1-102	0.74	Uni	43.3241
				Other	41.7999
	B. Occupation Controlled	1-102	1.00	Uni	43.5300
				Other	41.6626
	C. Both Controlled	1-101	1.23	Uni	43.6544
				Other	41.5803
Eleventh Grade	A. I.Q. Controlled	1-100	0.03	Uni	43.6949
				Other	43.3257
	B. Occupation Controlled	1-100	0.02	Uni	43.6691
				Other	43.3500
	C. Both Controlled	1-99	0.09	Uni	43.8356
				Other	43.1929
Twelfth Grade	A. I.Q. Controlled	1-91	3.18	Uni	41.4955
				Other	45.2538
	B. Occupation Controlled	1-91	0.78	Uni	42.5153
				Other	44.4301
	C. Both Controlled	1-90	3.20	Uni	41.4708
				Other	45.2737

TABLE XXI

RESULTS OF THE ANALYSES FOR THE ATTITUDE TOWARD SCHOOL

Category	Basis for Comparison	D.F.	F Ratio	Probability	Category Means or Adjusted Means	
Total Population	A. I.Q. Controlled	1-299	12.31	<.01	Uni	9.1813
					Other	10.2602
	B. Occupation Controlled	1-299	12.32	<.01	Uni	9.1791
					Other	10.2620
	C. Both Controlled	1-298	11.81	<.01	Uni	9.1810
					Other	10.2605
Males	A. I.Q. Controlled	1-142	1.30		Uni	9.3927
					Other	9.8995
	B. Occupation Controlled	1-142	2.11		Uni	9.3219
					Other	9.9524
	C. Both Controlled	1-141	1.41		Uni	9.3758
					Other	9.9122
Females	A. I.Q. Controlled	1-154	13.33	<.01	Uni	9.0726
					Other	10.5885
	B. Occupation Controlled	1-154	11.81	<.01	Uni	9.0555
					Other	10.5648
	C. Both Controlled	1-153	11.95	<.01	Uni	9.0465
					Other	10.5725
Tenth Grade	A. I.Q. Controlled	1-102	2.25		Uni	9.6338
					Other	10.3553
	B. Occupation Controlled	1-102	1.60		Uni	9.6825
					Other	10.3229
	C. Both Controlled	1-101	1.71		Uni	9.6670
					Other	10.3332
Eleventh Grade	A. I.Q. Controlled	1-100	1.45		Uni	9.3177
					Other	10.0212
	B. Occupation Controlled	1-100	2.05		Uni	9.2803
					Other	10.0564
	C. Both Controlled	1-99	1.05		Uni	9.3672
					Other	9.9745
Twelfth Grade	A. I.Q. Controlled	1-91	11.23	<.01	Uni	8.5052
					Other	10.4382
	B. Occupation Controlled	1-91	9.84	<.01	Uni	8.6000
					Other	9.3616
	C. Both Controlled	1-90	11.77	<.01	Uni	8.4761
					Other	10.4617

TABLE XXII

RESULTS OF THE ANALYSES FOR THE ATTITUDE TOWARD TEACHERS

Category	Basis for Comparison	D.F.	F Ratio	Probability	Category Means or Adjusted Means	
Total Population	A. I.Q. Controlled	1-299	5.09	<.05	Uni	7.6911
					Other	7.0441
	B. Occupation Controlled	1-299	6.53	<.05	Uni	7.7406
					Other	7.0046
	C. Both Controlled	1-298	5.41	<.05	Uni	7.7099
					Other	7.0291
Males	A. I.Q. Controlled	1-142	9.12	<.01	Uni	7.9465
					Other	6.6907
	B. Occupation Controlled	1-142	11.27	<.01	Uni	8.0093
					Other	6.6437
	C. Both Controlled	1-141	9.04	<.01	Uni	7.9559
					Other	6.6836
Females	A. I.Q. Controlled	1-154	0.05		Uni	7.4765
					Other	7.3847
	B. Occupation Controlled	1-154	0.11		Uni	7.5020
					Other	7.3631
	C. Both Controlled	1-153	0.09		Uni	7.4954
					Other	7.3687
Tenth Grade	A. I.Q. Controlled	1-102	1.72		Uni	7.3793
					Other	6.7472
	B. Occupation Controlled	1-102	2.29		Uni	9.4567
					Other	6.6956
	C. Both Controlled	1-101	2.24		Uni	7.4561
					Other	6.6960
Eleventh Grade	A. I.Q. Controlled	1-100	9.40	<.01	Uni	8.3861
					Other	6.9378
	B. Occupation Controlled	1-100	7.69	<.01	Uni	8.2722
					Other	7.0452
	C. Both Controlled	1-99	10.24	<.01	Uni	8.4270
					Other	6.8991
Twelfth Grade	A. I.Q. Controlled	1-91	0.28		Uni	7.9960
					Other	7.4927
	B. Occupation Controlled	1-91	0.05		Uni	7.4359
					Other	7.3018
	C. Both Controlled	1-90	0.29		Uni	7.1941
					Other	7.4972

Comparison four. Table XXIII indicates that in every case, University High School students had an observably more positive attitude toward the inter-personal relationships which exist between students and teachers than students at the control high school. Two comparisons are statistically significant: (a) the difference for total groups ($p. < .05$) and (b) the difference for the males ($p. < .05$).

Comparison five. Table XXIV reveals that there are no areas of significant difference between the groups regarding their attitude toward peers. Neither groups seems to be either more positive or negative to any significant degree.

Comparison six. Regarding the attitude toward self, there are no significant differences displayed between any of the groups compared. (See Table XXV.)

Summary of Findings

Findings of the attitude portion of the study follow:

1. Students taught by student teachers did not have a significantly more positive or more negative composite score on the attitude inventory than students taught by regularly employed teachers even when the data for these groups were statistically treated with the variables of intelligence and soci-economic status controlled.

2. Students taught by regularly employed teachers had significantly more positive attitudes toward school than those taught by student teachers, as indicated by that specific dimension of the attitude inventory.

3. Students taught by student teachers had a more positive attitude toward teachers than students taught by regularly employed teachers.

4. Students taught by student teachers had a significantly more positive attitude toward interpersonal relationships with their teachers than those taught by regularly employed teachers.

5. There was no significant difference regarding attitude toward peers of the students in the two populations.

6. There was no significant difference regarding the attitude toward student self concept as related to the student situation in the two populations.

TABLE XXIII

RESULTS OF THE ANALYSES FOR THE ATTITUDE
TOWARD RELATIONSHIPS BETWEEN STUDENTS AND TEACHERS

Category	Basis for Comparison	D.F.	F Ratio	Probability	Category Means or Adjusted Means	
Total Population	A. I.Q.	1-299	4.95	$<.05$	Uni	10.4856
	Controlled				Other	9.6009
	B. Occupation	1-299	7.06	$<.05$	Uni	10.5878
	Controlled				Other	9.5194
	C. Both	1-298	5.06	$<.05$	Uni	10.5018
	Controlled				Other	9.5879
Males	A. I.Q.	1-142	3.88		Uni	10.8575
	Controlled				Other	9.7571
	B. Occupation	1-142	5.78	$<.05$	Uni	10.9782
	Controlled				Other	9.6670
	C. Both	1-141	4.29	$<.05$	Uni	10.8999
	Controlled				Other	9.7255
Females	A. I.Q.	1-154	1.82		Uni	10.1917
	Controlled				Other	9.4259
	B. Occupation	1-154	2.07		Uni	10.2374
	Controlled				Other	9.3872
	C. Both	1-153	1.70		Uni	10.1908
	Controlled				Other	9.4267
Tenth Grade	A. I.Q.	1-102	3.26		Uni	10.1896
	Controlled				Other	9.0800
	B. Occupation	1-102	3.39		Uni	10.2397
	Controlled				Other	9.0466
	C. Both	1-101	3.83		Uni	10.2843
	Controlled				Other	9.0169
Eleventh Grade	A. I.Q.	1-100	2.78		Uni	10.6856
	Controlled				Other	9.4099
	B. Occupation	1-100	2.83		Uni	10.6448
	Controlled				Other	9.4484
	C. Both	1-99	3.71		Uni	10.7054
	Controlled				Other	9.3913
Twelfth Grade	A. I.Q.	1-91	0.10		Uni	10.6135
	Controlled				Other	10.3700
	B. Occupation	1-91	1.01		Uni	10.8914
	Controlled				Other	10.1455
	C. Both	1-90	0.08		Uni	10.5997
	Controlled				Other	10.3811

TABLE XXIV

RESULTS OF THE ANALYSES FOR THE ATTITUDE TOWARD PEERS

Category	Basis for Comparison	D.F.	F Ratio	Probability	Category Means or Adjusted Means	
Total Population	A. I.Q.	1-299	0.04		Uni	6.2480
	Controlled				Other	6.2844
	B. Occupation	1-299	0.02		Uni	6.2526
	Controlled				Other	6.2806
	C. Both	1-298	0.02		Uni	6.2537
	Controlled				Other	6.2799
Males	A. I.Q.	1-142	0.54		Uni	6.1783
	Controlled				Other	5.9874
	B. Occupation	1-142	0.39		Uni	6.1605
	Controlled				Other	6.0006
	C. Both	1-141	0.86		Uni	6.2087
	Controlled				Other	5.9647
Females	A. I.Q.	1-154	1.05		Uni	6.3332
	Controlled				Other	6.5547
	B. Occupation	1-154	1.27		Uni	6.3157
	Controlled				Other	6.5680
	C. Both	1-153	1.39		Uni	6.3087
	Controlled				Other	6.5739
Tenth Grade	A. I.Q.	1-102	0.78		Uni	6.2949
	Controlled				Other	6.0416
	B. Occupation	1-102	0.67		Uni	6.2915
	Controlled				Other	6.0438
	C. Both	1-101	0.83		Uni	6.3085
	Controlled				Other	6.0325
Eleventh Grade	A. I.Q.	1-100	3.88		Uni	6.0879
	Controlled				Other	6.6152
	B. Occupation	1-100	7.51	<.01	Uni	6.0041
	Controlled				Other	6.6944
	C. Both	1-99	3.71		Uni	6.0893
	Controlled				Other	6.6140
Twelfth Grade	A. I.Q.	1-91	0.86		Uni	6.4835
	Controlled				Other	6.9673
	B. Occupation	1-91	1.24		Uni	6.5117
	Controlled				Other	6.1445
	C. Both	1-90	0.93		Uni	6.4916
	Controlled				Other	6.1608

TABLE XXV
RESULTS OF THE ANALYSES FOR THE ATTITUDE TOWARD THE SELF CONCEPT IN RELATION TO THE SCHOOL SITUATION

Category	Basis for Comparison	D.F.	F Ratio	Probability	Category Means or Adjusted Means	
Total Population	A. I.Q. Controlled	1-299	0.04		Uni	5.2448
					Other	5.2810
	B. Occupation Controlled	1-299	0.04		Uni	5.2959
					Other	5.2402
	C. Both Controlled	1-298	0.26		Uni	5.2134
					Other	5.3060
Males	A. I.Q. Controlled	1-142	0.58		Uni	5.3443
					Other	5.1405
	B. Occupation Controlled	1-142	1.79		Uni	5.4304
					Other	5.0762
	C. Both Controlled	1-141	0.52		Uni	5.3400
					Other	5.1437
Females	A. I.Q. Controlled	1-154	0.79		Uni	5.1838
					Other	5.3974
	B. Occupation Controlled	1-154	0.99		Uni	5.1615
					Other	5.4162
	C. Both Controlled	1-153	1.78		Uni	5.1225
					Other	5.4493
Tenth Grade	A. I.Q. Controlled	1-102	3.60		Uni	5.5093
					Other	4.9463
	B. Occupation Controlled	1-102	1.79		Uni	5.4398
					Other	4.9926
	C. Both Controlled	1-101	3.04		Uni	5.4995
					Other	4.9528
Eleventh Grade	A. I.Q. Controlled	1-100	1.35		Uni	5.1218
					Other	5.5078
	B. Occupation Controlled	1-100	0.68		Uni	5.1886
					Other	5.4448
	C. Both Controlled	1-99	1.67		Uni	5.0971
					Other	5.5311
Twelfth Grade	A. I.Q. Controlled	1-91	0.57		Uni	5.1753
					Other	5.4162
	B. Occupation Controlled	1-91	0.00		Uni	6.3049
					Other	5.3115
	C. Both Controlled	1-90	0.75		Uni	5.1561
					Other	5.4317

Possible Comparisons of Student Achievement

The following comparisons were made of the achievement of students in the two groups as measured by university grade point average for post high school achievement and scores achieved on the National Merit Scholarship Qualifying Test for high school achievement.

Comparison one. The post-high school achievement of students taught primarily by student teachers as compared to the post-high school achievement of students taught by regularly employed teachers.

Comparison two. The achievement of students taught by student teachers as compared to the achievement of those taught by regularly employed teachers as evidenced by the English sub-test score on the National Merit Scholarship Qualifying Test.

Comparison three. The achievement of students taught by student teachers as compared to the achievement of those taught by regularly employed teachers as evidenced by the scores received on the mathematics sub-test of the National Merit Scholarship Qualifying Test.

Comparison four. The achievement of students taught by student teachers as compared to the achievement of those taught by regularly employed teachers as indicated by the scores received on the social studies sub-test of the National Merit Scholarship Qualifying Test.

Comparison five. The achievement of students taught by student teachers as compared to the achievement of those taught by regularly employed teachers as evidenced by the scores received on the science sub-test of the National Merit Scholarship Qualifying Test.

Comparison six. The achievement of students taught by student teachers as compared to the achievement of those taught by regularly employed teachers as indicated by scores received on the word usage sub-test of the National Merit Scholarship Qualifying Test.

Comparison seven. The achievement of students taught by student teachers as compared to the achievement of those taught by regularly employed teachers as indicated by composite scores received on the National Merit Scholarship Qualifying Test.

Results

Comparison one. Of the eight comparisons made with regard to university grade point average, only three sub-groups revealed significant differences, the classes (a) 1962 and (b) 1965 and (c) the females. The comparisons between the total group were not significantly different. The three sub-groups which appeared to be significantly different indicated that University High School students had achieved higher grade point averages at the collegiate level than their counterparts previously taught by regularly employed teachers. (See Table XXVI)

TABLE XXVI

RESULTS OF THE ANALYSES FOR THE UNIVERSITY GRADE POINT AVERAGE

Category	Basis for Comparison	D.F.	F Ratio	Probability	Category Means or Adjusted Means	
Total Population	A. I.Q. Controlled	1-394	3.351		Uni	2.6078
					Other	2.4652
	B. Occupation Controlled	1-394	1.654		Uni	2.5837
					Other	2.4755
	C. Both Controlled	1-393	2.269		Uni	2.5915
					Other	2.4722
Males	A. I.Q. Controlled	1-233	0.210		Uni	2.3739
					Other	2.4254
	B. Occupation Controlled	1-233	0.469		Uni	2.3495
					Other	2.4336
	C. Both Controlled	1-232	0.565		Uni	2.3479
					Other	2.4341
Females	A. I.Q. Controlled	1-158	8.436	<.01	Uni	2.8343
					Other	2.5369
	B. Occupation Controlled	1-158	5.594	<.05	Uni	2,8092
					Other	2.5518
	C. Both Controlled	1-157	7.450	<.01	Uni	2.8252
					Other	2.5423
1962	A. I.Q. Controlled	1-41	7.335	<.01	Uni	2.9230
					Other	2.4294
	B. Occupation Controlled	1-41	3.677		Uni	2.8492
					Other	2.4855
	C. Both Controlled	1-40	5.940	<.05	Uni	2.8977
					Other	2.4487
1963	A. I.Q. Controlled	1-56	0.005		Uni	2.5569
					Other	2.5685
	B. Occupation Controlled	1-56	0.128		Uni	2.5190
					Other	2.5772
	C. Both Controlled	1-55	0.115		Uni	2.5215
					Other	2.5766
1964	A. I.Q. Controlled	1-85	0.014		Uni	2.7234
					Other	2.7393
	B. Occupation Controlled	1-85	0.592		Uni	2.6539
					Other	2.7669
	C. Both Controlled	1-84	0.010		Uni	2.7249
					Other	2.7387
1965	A. I.Q. Controlled	1-84	5.124	<.05	Uni	2.7270
					Other	2.3872
	B. Occupation Controlled	1-84	3.266		Uni	2.6910
					Other	2.4052
	C. Both Controlled	1-83	4.041	<.05	Uni	2.7039
					Other	2.3987
1966	A. I.Q. Controlled	1-107	0.249		Uni	2.1801
					Other	2.2678
	B. Occupation Controlled	1-107	0.050		Uni	2.2725
					Other	2.2265
	C. Both Controlled	1-106	0.463		Uni	2.1561
					Other	2.2786

Comparison two. There were no significant differences between the groups or sub-groups as reflected by the English sub-test scores on the National Merit Scholarship Qualifying Test. (See Table XXVII)

Comparison three. There were no significant differences between the groups or sub-groups as indicated by the mathematics sub-test scores received in the National Merit Scholarship Qualifying Test. (See Table XXVIII)

Comparison four. There were significant differences for the entire group, the classes of 1962 and 1966, and for the males in the social studies sub-test scores of the National Merit Scholarship Qualifying Test. Four of the eight group and sub-group comparisons showed areas of significant difference, each of these comparisons indicating higher proficiency of University High School graduates. (See Table XXIX).

Comparison five. There were no significant differences between groups or sub-groups as indicated by scores on the science sub-test of the National Merit Scholarship Qualifying Test. (See Table XXX)

Comparison six. There were four comparisons which revealed significant differences with regard to the word usage sub-test scores on the National Merit Scholarship Qualifying Test, these being comparisons of the entire group, the classes of 1964 and 1966, and the males. University High School students' scores were significantly higher in every case. (See Table XXXI)

Comparison seven. Only one comparison revealed significant differences with regard to the composite scores achieved on the National Merit Scholarship Qualifying Test, that difference being with the males in the populations. University High School males scored significantly higher than their peers taught by regularly employed teachers. (See Table XXXII)

Summary of Results

Of the fifty-six comparisons made among groups and sub-groups regarding achievement, twelve revealed significant differences. Of the seven major fields (university grade point average, the five sub-tests of the NMSQT, and the NMSQT composite score), four revealed significant differences between the groups compared; one of the four (the composite score for the NMSQT) revealed only one sub-group comparison to be statistically significant. Those differences found statistically significant in every case indicated that students attending University High School achieved more highly as indicated by the measuring devices used in this study than their counterparts attending schools taught by full-time regularly employed teachers. (See Table XXXIII)

TABLE XXVII

RESULTS OF THE ANALYSES FOR THE ENGLISH SUB-TEST SCORES ON THE NATIONAL MERIT SCHOLARSHIP QUALIFYING TEST

Category	Basis for Comparison	D.F.	F Ratio	Probability	Category Means or Adjusted Means	
Total	A. I.Q.	1-394	0.810		Uni	5.1000
Population	Controlled				Other	4,9212
	B. Occupation	1-394	0.278		Uni	5.0586
	Controlled				Other	4.9389
	C. Both	1-393	0.621		Uni	5.0865
	Controlled				Other	4.9270
Males	A. I.Q.	1-233	1.066		Uni	4.8240
	Controlled				Other	4.5502
	B. Occupation	1-233	0.837		Uni	4.8328
	Controlled				Other	4.5472
	C. Both	1-232	1.048		Uni	4.8274
	Controlled				Other	4.5490
Females	A. I.Q.	1-158	0.535		Uni	5.3643
	Controlled				Other	5.5757
	B. Occupation	1-158	1.173		Uni	5.2801
	Controlled				Other	5.6257
	C. Both	1-157	0.727		Uni	5.3404
	Controlled				Other	5.5899
1962	A. I.Q.	1-41	0.750		Uni	4.6488
	Controlled				Other	4.1869
	B. Occupation	1-41	0.021		Uni	4.3343
	Controlled				Other	4.4260
	C. Both	1-40	0.464		Uni	4.5972
	Controlled				Other	4.2262
1963	A. I.Q.	1-56	0.475		Uni	5.4464
	Controlled				Other	4.9810
	B. Occupation	1-56	0.673		Uni	5.5308
	Controlled				Other	4.9617
	C. Both	1-55	0.705		Uni	5.5412
	Controlled				Other	4.9593
1964	A. I.Q.	1-85	0.260		Uni	4.8857
	Controlled				Other	4.6644
	B. Occupation	1-85	0.057		Uni	4.6451
	Controlled				Other	4.7599
	C. Both	1-84	0.264		Uni	4.8877
	Controlled				Other	4.6636
1965	A. I.Q.	1-84	0.035		Uni	5.3168
	Controlled				Other	5.2382
	B. Occupation	1-84	0.049		Uni	5.1899
	Controlled				Other	5.3016
	C. Both	1-83	0.000		Uni	5.2636
	Controlled				Other	5.2648
1966	A. I.Q.	1-107	0.057		Uni	5.2621
	Controlled				Other	5.1854
	B. Occupation	1-107	0.751		Uni	5.4468
	Controlled				Other	5.1028
	C. Both	1-106	0.005		Uni	5.1924
	Controlled				Other	5.2166

Scores are stanines based on Nebraska norms established by the University of Nebraska Examination Center. See Appendix E for raw-score equivalents.

TABLE XXVIII

RESULTS OF THE ANALYSES FOR THE MATHEMATICS SUB-TEST SCORES ON THE NATIONAL MERIT SCHOLARSHIP QUALIFYING TEST

Category	Basis for Comparison	D.F.	F Ratio	Probability	Category Means or Adjusted Means	
Total Population	A. I.Q. Controlled	1-394	2.054		Uni	5.2998
					Other	5.5335
	B. Occupation Controlled	1-394	2.343		Uni	5.2607
					Other	5.5503
	C. Both Controlled	1-393	2.345		Uni	5.2853
					Other	5.5397
Males	A. I.Q. Controlled	1-233	0.551		Uni	5.9683
					Other	5.8185
	B. Occupation Controlled	1-233	0.231		Uni	5.9419
					Other	5.8273
	C. Both Controlled	1-232	0.278		Uni	5.9377
					Other	5.8287
Females	A. I.Q. Controlled	1-158	2.302		Uni	4.6543
					Other	5.0271
	B. Occupation Controlled	1-158	2.755		Uni	4.5897
					Other	5.0655
	C. Both Controlled	1-157	2.203		Uni	4.6560
					Other	5.0262
1962	A. I.Q. Controlled	1-41	0.688		Uni	6.0050
					Other	5.4762
	B. Occupation Controlled	1-41	0.105		Uni	5.8309
					Other	5.6085
	C. Both Controlled	1-40	0.750		Uni	6.0276
					Other	5.4590
1963	A. I.Q. Controlled	1-56	1.636		Uni	5.2418
					Other	5.8613
	B. Occupation Controlled	1-56	0.966		Uni	5.2717
					Other	5.8544
	C. Both Controlled	1-55	1.173		Uni	5.3072
					Other	5.8463
1964	A. I.Q. Controlled	1-85	0.178		Uni	5.4632
					Other	5.6098
	B. Occupation Controlled	1-85	1.556		Uni	5.1962
					Other	7.7158
	C. Both Controlled	1-84	0.190		Uni	5.4596
					Other	5.6113
1965	A. I.Q. Controlled	1-84	1.799		Uni	4.9798
					Other	5.406[illegible]
	B. Occupation Controlled	1-84	2.054		Uni	4.9139
					Other	5.4396
	C. Both Controlled	1-83	1.956		Uni	4.9616
					Other	5.4158
1966	A. I.Q. Controlled	1-107	0.676		Uni	5.1998
					Other	5.4238
	B. Occupation Controlled	1-107	0.001		Uni	5.3474
					Other	5.3577
	C. Both Controlled	1-106	0.971		Uni	5.1646
					Other	5.4395

Scores are stanines based on Nebraska norms established by the University of Nebraska Examination Center. See Appendix E for raw-score equivalents.

TABLE XXIX

RESULTS OF THE ANALYSES FOR THE SOCIAL STUDIES SUB-TEST SCORES ON THE NATIONAL MERIT SCHOLARSHIP QUALIFYING TEST

Category	Basis for Comparison	D.F.	F Ratio	Probability	Category Means or Adjusted Means	
Total	A. I.Q.	1-394	9.141	<.01	Uni	5.5212
Population	Controlled				Other	5.0107
	B. Occupation	1-394	5.474	<.05	Uni	5.4982
	Controlled				Other	5.0206
	C. Both	1-393	9.139	<.01	Uni	5.5280
	Controlled				Other	5.0078
Males	A. I.Q.	1-233	6.278	<.05	Uni	5.5866
	Controlled				Other	5.0022
	B. Occupation	1-233	3.835		Uni	5.5648
	Controlled				Other	5.0095
	C. Both	1-232	5.263	<05	Uni	5.5595
	Controlled				Other	5.0113
Females	A. I.Q.	1-158	3.050		Uni	5.4618
	Controlled				Other	5.0227
	B. Occupation	1-158	1.551		Uni	5.4192
	Controlled				Other	5.0480
	C. Both	1-157	3.683		Uni	5.4922
	Controlled				Other	5.0047
1962	A. I.Q.	1-41	8.283	<01	Uni	5.7154
	Controlled				Other	4.1363
	B. Occupation	1-41	1.691		Uni	5.3306
	Controlled				Other	4.4288
	C. Both	1-40	6.952	<.05	Uni	5.6556
	Controlled				Other	4.1818
1963	A. I.Q.	1-56	0.388		Uni	5.0724
	Controlled				Other	4.7959
	B. Occupation	1-56	0.332		Uni	5.0789
	Controlled				Other	4.7944
	C. Both	1-55	0.459		Uni	5.1000
	Controlled				Other	4.7896
1964	A. I.Q.	1-85	0.021		Uni	5.3990
	Controlled				Other	5.3496
	B. Occupation	1-85	0.347		Uni	5.2038
	Controlled				Other	5.4271
	C. Both	1-84	0.023		Uni	5.4004
	Controlled				Other	5.3490
1965	A. I.Q.	1-84	0.856		Uni	5.5476
	Controlled				Other	5.2262
	B. Occupation	1-84	0.331		Uni	5.4952
	Controlled				Other	5.2524
	C. Both	1-83	0.906		Uni	5.5585
	Controlled				Other	5.2208
1966	A. I.Q.	1-107	4.285	<.05	Uni	5.7183
	Controlled				Other	5.0471
	B. Occupation	1-107	7.282	<.01	Uni	6.0219
	Controlled				Other	4.9113
	C. Both	1-106	4.608	<.05	Uni	5.7481
	Controlled				Other	5.0337

Scores are stanines based on Nebraska norms established by the University of Nebraska Examination Center. See Appendix E for raw-score equivalents.

TABLE XXX

RESULTS OF THE ANALYSES FOR THE SCIENCE SUB-TEST SCORES ON THE NATIONAL MERIT SCHOLARSHIP QUALIFYING TEST

Category	Basis for Comparison	D.F.	F Ratio	Probability	Category Means or Adjusted Means	
Total	A. I.Q.	1-394	0.082		Uni	5.4371
Population	Controlled				Other	5.4891
	B. Occupation	1-394	0.234		Uni	5.4007
	Controlled				Other	5.5047
	C. Both	1-393	0.111		Uni	5.4305
	Controlled				Other	5.4920
Males	A. I.Q.	1-233	0.027		Uni	5.8917
	Controlled				Other	5.8553
	B. Occupation	1-233	0.006		Uni	5.8807
	Controlled				Other	5.8590
	C. Both	1-232	0.004		Uni	5.8753
	Controlled				Other	5.8608
Females	A. I.Q.	1-158	0.287		Uni	4.9962
	Controlled				Other	4.8438
	B. Occupation	1-158	0.014		Uni	4.9254
	Controlled				Other	4.8859
	C. Both	1-157	0.299		Uni	4.9996
	Controlled				Other	4.8418
1962	A. I.Q.	1-41	0.120		Uni	4.8315
	Controlled				Other	5.0080
	B. Occupation	1-41	1.036		Uni	4.5672
	Controlled				Other	5.2089
	C. Both	1-40	0.081		Uni	4.8472
	Controlled				Other	4.9962
1963	A. I.Q.	1-56	3.298		Uni	6.3355
	Controlled				Other	5.4023
	B. Occupation	1-55	1.765		Uni	6.2167
	Controlled				Other	5.4295
	C. Both	1-55	2.453		Uni	6.2471
	Controlled				Other	5.4225
1964	A. I.Q.	1-85	0.023		Uni	5.8870
	Controlled				Other	5.8226
	B. Occupation	1-85	0.333		Uni	5.6439
	Controlled				Other	5.9191
	C. Both	1-84	0.024		Uni	5.8883
	Controlled				Other	5.8221
1965	A. I.Q.	1-84	0.792		Uni	5.0630
	Controlled				Other	5.4168
	B. Occupation	1-84	1.084		Uni	4.9783
	Controlled				Other	5.4591
	C. Both	1-83	0.917		Uni	5.0399
	Controlled				Other	5.4283
1966	A. I.Q.	1-107	0.554		Uni	5.6534
	Controlled				Other	5.4182
	B. Occupation	1-107	2.048		Uni	5.8662
	Controlled				Other	5.3230
	C. Both	1-106	0.449		Uni	5.6413
	Controlled				Other	5.4236

Scores are stanines based on Nebraska norms established by the University of Nebraska Examination Center. See Appendix E for raw-score equivalents.

TABLE XXXI

RESULTS OF THE ANALYSES FOR THE WORD USAGE SUB-TEST SCORES ON THE NATIONAL MERIT SCHOLARSHIP QUALIFYING TEST

Category	Basis for Comparison	D.F.	F Ratio	Probability	Category Means or Adjusted Means	
Total Population	A. I.Q.	1-394	23.277	.01	Uni	5.6177
	Controlled				Other	4.7788
	B. Occupation	1-394	9.579	.01	Uni	5.5091
	Controlled				Other	4.8252
	C. Both	1-393	17.680	.01	Uni	5.5457
	Controlled				Other	4.8096
Males	A. I.Q.	1-233	19.882	.01	Uni	5.7616
	Controlled				Other	4.6953
	B. Occupation	1-233	9.013	.01	Uni	5.6577
	Controlled				Other	4.7299
	C. Both	1-232	14.533	.01	Uni	5.6509
	Controlled				Other	4.7322
Females	A. I.Q.	1-158	4.474	.05	Uni	5.4740
	Controlled				Other	4.9263
	B. Occupation	1-158	1.250		Uni	5.3538
	Controlled				Other	4.9977
	C. Both	1-157	3.542		Uni	5.4388
	Controlled				Other	4.9472
1962	A. I.Q.	1-41	4.510	.05	Uni	5.6204
	Controlled				Other	4.6085
	B. Occupation	1-41	0.509		Uni	5.2910
	Controlled				Other	4.8589
	C. Both	1-40	3.672		Uni	5.5756
	Controlled				Other	4.6425
1963	A. I.Q.	1-56	3.479		Uni	5.6050
	Controlled				Other	4.5905
	B. Occupation	1-56	1.675		Uni	5.4426
	Controlled				Other	4.6277
	C. Both	1-55	2.397		Uni	5.4761
	Controlled				Other	4.6201
1964	A. I.Q.	1-85	4.198	.05	Uni	6.1049
	Controlled				Other	5.3552
	B. Occupation	1-85	0.747		Uni	5.8354
	Controlled				Other	5.4621
	C. Both	1-84	4.141	.05	Uni	6.1008
	Controlled				Other	5.3568
1965	A. I.Q.	1-84	2.713		Uni	5.2927
	Controlled				Other	4.6640
	B. Occupation	1-84	0.703		Uni	5.1482
	Controlled				Other	4.7362
	C. Both	1-83	1.942		Uni	5.2321
	Controlled				Other	4.6943
1966	A. I.Q.	1-107	9.500	.01	Uni	5.5666
	Controlled				Other	4.5623
	B. Occupation	1-107	9.369	.01	Uni	5.7956
	Controlled				Other	4.4598
	C. Both	1-106	6.998	.01	Uni	5.4748
	Controlled				Other	4.6034

Scores are stanines based on Nebraska norms established by the University of Nebraska Examination Center. See Appendix E for raw-score equivalents.

TABLE XXXII
RESULTS OF THE ANALYSES FOR THE COMPOSITE SCORES ON THE NATIONAL MERIT SCHOLARSHIP QUALIFYING TEST

Category	Basis for Comparison	D.F.	F Ratio	Probability	Category Means or Adjusted Means	
Total Population	A. I.Q. Controlled	1-394	3.387		Uni	5.4034
					Other	5.1619
	B. Occupation Controlled	1-394	0.904		Uni	5.3487
					Other	5.1853
	C. Both Controlled	1-393	2.371		Uni	5.3781
					Other	5.1727
Males	A. I.Q. Controlled	1-233	5.711	<.05	Uni	5.6199
					Other	5.2001
	B. Occupation Controlled	1-233	2.333		Uni	5.5760
					Other	5.2148
	C. Both Controlled	1-232	3.909	<.05	Uni	5.5706
					Other	5.2166
Females	A. I.Q. Controlled	1-158	0.230		Uni	5.1911
					Other	5.0944
	B. Occupation Controlled	1-158	0.006		Uni	5.1180
					Other	5.1378
	C. Both Controlled	1-157	0.198		Uni	5.1876
					Other	5.0965
1962	A. I.Q. Controlled	1-41	1.953		Uni	5.3076
					Other	4.7263
	B. Occupation Controlled	1-41	0.037		Uni	5.0344
					Other	4.9339
	C. Both Controlled	1-40	1.488		Uni	5.2724
					Other	4.7530
1963	A. I.Q. Controlled	1-56	1.374		Uni	5.7041
					Other	5.2345
	B. Occupation Controlled	1-56	0.811		Uni	5.6698
					Other	5.2423
	C. Both Controlled	1-55	1.231		Uni	5.6956
					Other	5.2364
1964	A. I.Q. Controlled	1-85	0.588		Uni	5.5690
					Other	5.3615
	B. Occupation Controlled	1-85	0.162		Uni	5.3199
					Other	5.4604
	C. Both Controlled	1-84	0.573		Uni	5.5678
					Other	5.3620
1965	A. I.Q. Controlled	1-84	0.195		Uni	5.2442
					Other	5.1193
	B. Occupation Controlled	1-84	0.012		Uni	5.1324
					Other	5.1752
	C. Both Controlled	1-83	0.048		Uni	5.2026
					Other	5.1401
1966	A. I.Q. Controlled	1-107	1.491		Uni	5.4520
					Other	5.1662
	B. Occupation Controlled	1-107	3.340		Uni	5.6646
					Other	5.0711
	C. Both Controlled	1-106	0.991		Uni	5.4194
					Other	5.1808

Scores are stanines based on Nebraska norms established by the University of Nebraska Examination Center. See Appendix E for raw-score equivalents.

TABLE XXXIII

MEAN GPA AND NMSQT SCORES (WITH I.Q. AND SOCIO-ECON
ACHIEVEMENT MEASURES FOR TOTAL POPUL
BY YEAR, AND FOR MALES AND FEMAL

	Total Population		1962		1963		1964		1965	
GPA[1]	2.5915*	2.4722**	$p < .05$ 2.8977	2.4487	2.5215	2.5766	2.7249	2.7387	$p < .05$ 2.7039	2.39
Eng.[2]	5.0865	4.9270	4.5972	4.2262	5.5412	4.9593	4.8877	4.6636	5.2636	5.2
Math[2]	5.2853	5.5397	6.0276	5.4590	5.3072	5.8463	5.4596	5.6113	4.9616	5.4
Soc. Stu.[2]	$p < .01$ 5.5280	5.0078	$p < .05$ 5.6556	4.1818	5.1000	4.7896	5.4000	5.3490	5.5585	5.2
Sci.[2]	5.4305	5.4920	4.8472	4.9962	6.2471	5.4225	5.8883	5.8221	5.0399	5.4
Word Usage[2]	$p < .01$ 5.5457	4.8098	5.5756	4.6425	5.4761	4.6201	$p < .05$ 6.1008	5.3568	5.2321	4.6
Comp.[2]	5.3781	5.1727	5.2724	4.7530	5.6956	5.2364	5.5678	5.3620	5.2026	5.1

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[1] GPA is University Grade Point Average based on a 4-point scale with A=4.

[2] NMSQT scores are stanines based on Nebraska norms established by the University of Nebraska Examination Center. See Appendix E for raw-score equivalents.

TABLE XXXIII

TH I.Q. AND SOCIO-ECONOMIC LEVEL CONTROLLED)
ASURES FOR TOTAL POPULATION,
ND FOR MALES AND FEMALES

	1965	1966	Males	Females
.7387	p < .05 2.7039 2.3987	2.1561 2.2786	2.3479 2.4341	p < .01 2.8252 2.5423
.6636	5.2636 5.2648	5.1924 5.2166	4.8274 4.5480	5.3403 5.5899
.6113	4.9616 5.4158	5.1646 5.4395	5.9377 5.8287	4.6560 5.0262
.3490	5.5585 5.2208	p < .05 5.7481 5.0337	p < .05 5.5595 5.0113	5.4922 5.0047
.8221	5.0399 5.4283	5.6413 5.4236	5.8753 5.8608	4.9996 4.8418
05 .3568	5.2321 4.6943	p < .01 5.4748 4.6034	p < .01 5.6509 4.7322	5.4388 4.9472
.3620	5.2026 5.1401	5.4194 5.1808	p < .05 5.5706 5.2166	5.1876 5.0965

scale with A=4.

lished by the
E for raw-score

* University High School

**Other Schools

CHAPTER IV

SUMMARY AND CONCLUSIONS

Summary

The purpose of the study was to compare the impact of student teachers with the impact of regular full-time classroom teachers in two areas; (1) the attitude area of the affective domain of learning and (2) the achievement area of the cognitive domain of learning. Experimental and control groups for the attitude portion of the study were Sample A, the student population of University High School on the campus of the University of Nebraska, and Sample B, the student population of a Nebraska high school comparable in enrollment, curricular offerings, scholastic merit, and taught exclusively by regular, full-time classroom teachers. The experimental and control groups for the achievement portion of the study were Sample C, the 1962, 1963, 1964, 1965 and 1966 graduates of nine Nebraska high schools in the Lincoln-Omaha area, chosen for their similarity to University High School in enrollment, curriculum and number of graduates attending the University of Nebraska, who had been taught primarily by full-time teachers.

The instrument used in the attitude portion of the study was an attitude scale developed to measure five areas of student attitude: specific attitude toward school; attitude towards teachers; attitude towards relationships with peers; and attitude toward self in relation to the school situation. A composite score for the entire scale was computed and termed "general attitude toward school." The scale was administered to the experimental and control groups. The results were analyzed using analysis of covariance to compare the groups and indicated that students in the experimental group (taught by student teachers) demonstrated significantly more positive attitudes towards teachers and interpersonal relationships between students and teachers, significantly less positive attitudes toward their own school, and no significant difference in general attitude toward school, attitude toward peers, and attitude toward self.

The measuring instruments in the achievement portion of the study were the composite score and five sub-test scores of the National Merit Scholarship Qualifying Test as a measure of high-school achievement, and the university grade-point average as a measure of post-high-school achievement. The comparison of the NMSQT scores using analysis of covariance showed there were significant differences for the entire groups and for the sub-groups of males and the 1962 and 1966 classes on the social studies sub-test scores, with the University High School graduates showing higher scores; for the entire groups, the males, and the 1964 and 1966 classes on the word usage sub-test, with University High School graduates achieving higher scores; and on the composite scores with University High School graduates achieving higher scores. A comparison, again using analysis of covariance, of the two groups on university grade point average showed significant differences, favoring University High School graduates, for the classes of 1962 and 1965 and the females.

Conclusions

Attitude. The investigators hypothesized that there would be no significant differences between groups A and B with regard to student attitude in six areas: attitude toward the total school situation (composite score), attitude toward school, attitude toward teachers, attitude toward interpersonal relationships between students and teachers, attitude toward peer group relationships, attitude toward the student's own self-adjustment to the school situation. Analysis of student responses to the attitude scale showed no significant differences between the groups with regard to general attitude toward the total scoool situation (composite scores), attitude toward peer group relationships and attitude toward the student's own self-adjustment to the school situation. Significant differences between the groups were found with regard to specific attitude toward school, attitude toward teachers and attitude toward the interpersonal relationships between teachers and students. The two categories relating to student attitude toward teachers showed University High School students, taught exclusively by student teachers, to be significantly more positive in their attitude toward teachers; they were significantly less positive in their specific attitude toward their own school.

The investigators conclude from these results that:

1. The impact of student teachers is no less positive than that of regularly employed, full-time teachers with regard to attitude toward school and teachers.

2. The impact of student teachers is greatest and most positive in areas involving close student-teacher contact.

There may be several explanations for this. The student teachers in University High School usually had only one class (30 students or less) as their primary responsibility. With this limited load, they may have found it possible to become more involved in the personal interests and activities of their students than did the full-time teachers in the control schools, where teachers may have responsibility for 75 or more students. A second explanation may be indicated by Warren A. Peterson's research on "Age, Teachers' Role, and the Institutional Setting."[1] He found that the teacher role changed radically with age, that older teachers found it much more difficult to establish relationships with students than they had when they were younger.

High School Achievement. In the high school achievement portion of the study the investigators hypothesized there would be no significant differences in high school achievement as measured by scores on the National Merit

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[1] Warren A. Peterson, "Age, Teachers' Role and the Institutional Setting," in Contemporary Research on Teacher Effectiveness, Edited by Bruce J. Biddle and William J. Ellena (New York: Holt, Rinehard and Winston, 1964), pp. 264-315.

Scholarship Qualifying Test between samples C and D. Analysis of NMSQT scores for the two groups and the sub-groups (males, females, and 1962, 1963, 1964, 1965, 1966 graduates) revealed significantly higher achievement for University High School groups in social studies and word usage sub-tests. In addition, University High School females had significantly better composite scores ($p < .05$) on the NMSQT than did their control group counterparts. No other significant differences were indicated.

The investigators conclude from these results that, since all significant differences in the measure of high school achievement indicated a higher level of achievement by University High School graduates than by their control group counterparts, the impact of student teachers in the academic areas of learning was no less positive than that of experienced teachers. Instruction provided by student teachers under close supervision, as indicated by this study, was no less effective than that provided by experienced teachers.

Post-High School Achievement. It was hypothesized in the post-high school section of the study that there would be no significant differences in university achievement as evidenced by university grade point average between groups C and D. Comparison of figures for the two groups and their sub-groups (males, females, 1962, 1963, 1964, 1965, 1966 graduates) showed a significantly higher level of achievement for the University High School graduates, for females and 1962 and 1965 graduating classes. No significant differences were noted for any of the other groups.

The investigators conclude that, since all significant differences in university grade point average indicated higher achievement by University High School graduates, the post-high school achievement level of students taught by student teachers compared favorably with that of students taught by experienced teachers. The impact of student teachers on high school graduates from University High School was no less positive than that of experienced teachers on graduates of nine control group schools.

This academic success of University High School graduates has been further substantiated by a report reproduced in Table XXXIV, provided by the Office of Admissions of the University of Nebraska. This report indicates a comparison between the grade point averages of University High School graduates and mean grade point averages for all University students.

TABLE XXXIV

THE UNIVERSITY OF NEBRASKA OFFICE OF ADMISSIONS
SUMMARY REPORT OF GRADE POINT AVERAGES

1st Semester 1965-66

	University High Freshmen							All Freshmen	
High School Quarter	No. of Students	Hours Averaged	Hours Passed	Hours Failed	Hours In-Complete	Grade Points	Grade Point Average		U of N Grade Point Average
0	6	33	33	0	0	106	3.212	0	2.174
1	11	169	194	0	2	523	3.094	1	2.694
2	9	130	124	10	0	323	2.485	2	1.964
3	11	164	156	12	0	384	2.341	3	1.601
4	3	47	47	0	0	113	2.404	4	1.130
Total	40	543	554	22	2	1,336	2.460	Total	2.195
	Other University High Undergraduates							All Undergraduates	
Sophomores	33	1,484	1,484	31	4	4,016	2.706		2.567
Juniors	24	1,719	1,716	113	27	4,606	2.679		2.699
Seniors	23	2,560	2,563	57	31	7,144	2.791		2.759

4.000 equal A, 3.000 equal B, 2.000 equal C, 1.000 equal D, 0.000 equal F.

TABLE XXXIV
(continued)

2nd Semester 1965-66

University High Freshmen									All Freshmen
High School Quarter	No. of Students	Hours Averaged	Hours Passed	Hours Failed	Hours In-complete	Grade Points	Grade Point Average		U of N Grade Point Average
0	4	34	34	0	0	116	3.412	0	1.801
1	6	107	107	4	0	343	3.205	1	2.651
2	8	228	232	0	0	592	2.596	2	2.005
3	11	288	256	36	0	633	2.198	3	1.641
4	3	88	83	5	0	190	2.159	4	1.176
Total	32	745	712	45	0	1,874	2.515	Total	2.176
Other University High Undergraduates									All Undergraduates
Sophomores	31	1,575	1,560	70	16	4,088	2.596		2.498
Juniors	28	2,089	2,121	94	12	5,573	2.668		2.654
Seniors	26	3,038	3,015	84	51	8,580	2.824		2.783

4.000 equal A, 3.000 equal B, 2.000 equal C, 1.000 equal D, 0.000 equal F.

Discussion

In addition to the limitations enumerated in Chapter I, the investigators have recognized that there are many differences between the schools in the study other than the fact that University High School used student teachers and the others used full-time professional staffs. Homogeneity of populations is difficult to achieve. The many variables operating in the eleven high schools rule out the possibility of homogeneity. However, the degree of comparability achieved in the samples is as great as that likely to be achieved in a similar study.

There is always a danger in global studies such as this of attributing causal relationships to variables which seem, intuitively, to make the best sense. What makes the best sense is not necessarily the causative factor in all cases. There are, however, several things which tend to reinforce the investigators in their drawing of cause-effect relationships between the presence or absence of student teachers and the attitude and achievement of students.

The statistical technique employed controlled the samples for intelligence and for a socio-economic factor, breadwinner's occupation. The attitude scale apparently achieved a high level of discrimination on the individual elements it was designed to measure. The investigators found very little variation among the nine schools selected as the control group for the achievement portion of the study with regard to their NMSQT scores and their university grade point average. Finally, an observation of the qualifications of the student teachers assigned to University High School reveals that the selection followed the usual selection practices, and that no effort had been made to assign potentially superior student teachers to University High School.

It is the opinion of the investigators that similar study carried out in a public school setting, with student teacher supervision provided by cooperating teachers and trained supervisors from a university staff, would produce similar results, and that the effect of student teachers in such a setting would not be less positive than their effect in the laboratory school of the University of Nebraska. There is no reason to believe that the cooperating teachers and the college supervisor, working together, could not achieve as positive a supervisory setting as that achieved by the college supervisor alone at University High School.

CHAPTER V. RECOMMENDATIONS FOR FURTHER STUDY

The findings of this study lead to a number of recommendations for further research.

1. This study should be duplicated in a public school setting where student teachers and regular teachers both deal on a regular basis with students.

2. An investigation should be made to determine the factors within the school environment which contribute to student attitude. This recommendation is made in view of the apparent lack of correlation between attitude toward school and attitude toward teachers.

3. An investigation should be made of the relationship between student attitude and student achievement.

APPENDIX A

ACADEMIC CURRICULA FOR THE ELEVEN SCHOOLS IN THE STUDY FOR THE YEARS 1961-62 TO 1966-67

ACADEMIC CURRICULA FOR THE ELEVEN SCHOOLS IN THE STUDY FOR THE YEARS 1961-62 to 1966-67

University High School (Samples A and C

Subject	Enrollment (Grades 10-12)						
	1961-62	1962-63	1963-64	1964-65	1965-66	1966-67	Mean
Language Arts							
English	154	128	178	226	166	145	166.2
Speech and Public Speaking	30	38	82	27	15	18	35.0
Dramatics and Debate	15	17		10	12	10	12.8
Journalism					28	35	31.5
Foreign Language							
French I	13	18	22	12	6		14.2
French II			6	15	15		12.0
French III				16			16.0
German I						6	6.0
Latin I	14	15	10	8	4	3	9.0
Latin II	19	19	12		14	7	14.2
Latin III							
Spanish I	22	26	26	22		25	24.2
Spanish II	19	14	22	13		14	16.4
Spanish III							
Social Studies							
World History	68	61	60	40	55	44	54.7
U.S. History	53	60	56	64	48	49	55.0
Modern or American Problems	61	57			39		52.3
Sociology			45	38	22	28	37.0
Psychology			21	24		22	22.2
International Relations			21	12	39	28	25.0
Comparative Political Systems			45	20	22	22	27.2
Modern History Seminar		10	18	16	10		13.5
Mathematics							
General Mathematics I							
General Mathematics II							
Beginning Algebra	11	12	3	4	1	3	6.2
Advanced Algebra	28	33	21	29	26	33	28.3
Beginning Geometry	71	64	47	59	55	53	58.2
Trigonometry	14						14.0
College Level Math		12	18	19	20	11	16.0

University High School Cont.

	Enrollment (Grades 10-12					
Subject	1961-62	1962-63	1963-64	1964-65	1965-66	1966-67	Mean
Science							
Biology	50	57	54	56	53	39	51.5
Chemistry	35	30	39	34	27	33	33.0
Physics	21	18	15	20	26	16	19.3

SAMPLE B

	Enrollment (Grades 10-12)						
Subject	1961-62	1962-63	1963-64	1964-65	1965-66	1966-67	Mean
Language Arts							
English	192	233	121	233	195	227	200.2
Speech and Public Speaking	162			54	31	49	74.0
Creative Writing					17		17.0
Dramatics and Debate					8	5	6.5
Foreign Languages							
French I		42					42.0
French II		12					12.0
Spanish I	23			22	18	30	23.25
Spanish II	6		26	13	12	10	13.4
Spanish III				5	2	7	4.67
Social Studies							
World History	53	107	174	130	65	66	99.2
U.S. History	73	51			71	74	67.5
Advanced or American Civics	18	39	46		44	43	38.0
Economics		16	18	42	26	26	25.6
Modern or American Problems	32		28	42	18	35	31.0
Mathematics							
General Mathematics I							
General Mathematics II	21	22	24	28	26	20	23.5
Beginning Algebra		38	6	19	13		14.0
Advanced Algebra	31		48	33	28	34	35.8
Beginning Geometry	41	64	45	43	41	54	48.0
Advanced Geometry		29					29.0
Trigonometry	21	22	18	31	14	22	21.3
College Level Math				31	14	22	22.3
Science							
Physical Science	14	12	12	18	16		14.4
Biology	63	115	58	71	70	72	91.8
Chemistry	41	17	47	33	39	28	34.2
Physics	5	12	11	20	13	11	14.2

SAMPLE D_1

	Enrollment (Grades 10-12)						
Subject	1961-62	1962-63	1963-64	1964-65	1965-66	1966-67	Means
Language Arts							
English	198	198	221	229	227	295	228.0
Speech and Public Speaking				14	14	14	14.0
Journalism		11					11.0
Foreign Language							
Spanish I	21	16	3		9	5	10.8
Spanish II	29		17			2	16.0
Spanish III							
Social Studies							
World History	33		18	132	42	42	93.4
U.S. History	66	60	99		84	87	81.0
Community Civics						14	14.0
Adv. Civics or Amer. Gov't.	55	51	67	84	71	84	68.67
Economics						23	23.0
Sociology					51	61	56.0
Mathematics							
General Math I	30					11	20.5
General Math II	28	19	16	30		27	25.4
Beginning Algebra	59		17	16	17	25	26.8
Advanced Algebra	34	19	48	38		35	34.8
Beginning Geometry	56	52	51	51	59	70	56.5
Trigonometry					17	22	14.5
Math Analysis					17	22	14.5
Science							
Biology	78	78	74	87	90	117	87.5
Chemistry	33	18	39	36	37	23	31.0
Physics	20	16	19	29	10	14	19.67

SAMPLE D_2

Language Arts							
English	99	121	130	131	108	110	116.5
Foreign Languages							
Spanish I	31						31.0
Spanish II	5			8	11	12	14.0
Social Studies							
World History	35	62	40	11	33	35	36.0
U.S. History	31	33	56	39	34	32	37.5
Community Civics							
Modern or American Problems	24			44	37	30	33.8
Economics		20					20.0

SAMPLE D_2 Cont.

Subject	1961-62	1962-63	1963-64	1964-65	1965-66	1966-67	Mean
	Enrollment (Grades 10-12)						
Mathematics							
General Math I				8			8.0
General Math II			21				21.0
Beginning Algebra							
Advanced Algebra	6	12	18	16	18	25	15.9
Beginning Geometry	21	38	27	18	28		26.4
Advanced Geometry							
Trigonometry		6	6				6.0
College Level Math				10		11	10.5
Math Analysis					13		13.0
Science							
Biology	34	10	40	35	41	26	31.0
Chemistry	13	11	35	16	13	11	16.5
Physics	16	11		12			13.0
BSCS						19	19.0

SAMPLE D_3

Subject	1961-62	1962-63	1963-64	1964-65	1965-66	1966-67	Mean
	Enrollment (Grades 10-12)						
Language Arts							
English	145	161	177	172	178	154	164.5
Speech and Public Speaking	25	15	21	21	19	20	20.2
Journalism	13	11	15	13			13.0
College Level English						16	16.0
Foreign Lanaguage							
Spanish I	4	1		8	7	7	5.4
Spanish II	11	18	13	11	16	4	12.2
Spanish III	7		6		7	6	6.5
Social Studies							
World History	56	48	57	43	44	52	50.0
U.S. History	50	63		61	63	52	57.8
Advanced Civics	19		41	20	63	59	45.8
American or Modern Problems			41	20			20.5
Mathematics							
General Math I							
General Math II			12	14			13.0
Beginning Algebra	9	13	10	12	8	17	16.2
Advanced Algebra	14	15	18	22	26	24	19.9
Beginning Geometry	2	30	37	35	38	37	29.9
Advanced Geometry							
Trigonometry	12	10	6	11	16		11.0
College Level Math		10	6	11		15	11.0
Survey of Math							

SAMPLE D_3 Cont.

Subject	Enrollment (Grades 10-12) 1961-62	1962-63	1963-64	1964-65	1965-66	1966-67	Mean
Science							
Physical Science	22	3	3	6			8.5
Biology	24	58	61	55	55	65	53.0
Chemistry	13	22	18	24	40	24	23.5
Physics	14	9	8	11	10	15	11.2

SAMPLE D_4

Subject	Enrollment (Grades 10-12) 1961-62	1962-63	1963-64	1964-65	1965-66	1966-67	Mean
Language Arts							
English	105	126	128	135	117	140	125.2
Speech and Public Speaking	13	8	19	26		33	19.8
Remedial Reading					6	1	3.5
Foreign Language							
German I		4	7		17	8	9.0
German II						11	11.0
German III							
Social Studies							
World History	39	50	35	52	40	45	43.5
U. S. History	36	43	52	33	49	47	43.5
Modern or American Problems	31	33	42	51	35	49	40.2
Mathematics							
General Math II							
Beginning Algebra	11	10	10	19	13	23	14.3
Advanced Algebra	27		47	16	27	24	28.2
Beginning Geometry		31		27	19	40	29.25
Trigonometry		3	7	7	7	4	5.25
Advanced Geometry			25				25.0
Science							
Biology	38	34	35	52	40	49	41.3
Chemistry	35		40	18	16	29	25.8
Physics		21	35	18	10	8	20.0

SAMPLE D_5

Subject	Enrollment (Grades 10-12) 1961-62	1962-63	1963-64	1964-65	1965-66	1966-67	Mean
Language Arts							
English	275	308	305	325	334	325	312.0
Speech and Public Speaking	10	13		4	39	26	18.4
English Composition			13		24		18.5
Journalism							

SAMPLE D_5 Cont.

Subject	Enrollment (Grades 10-12) 1961-62	1962-63	1963-64	1964-65	1965-66	1966-67	Mean
Foreign Language							
Spanish I		45	42	14	14		28.8
Spanish II	26	26	43	19	38	11	27.2
Social Studies							
World History	126	135	114	149	122	134	130.0
U.S. History	103	113	114	100	132	112	112.3
Advanced Civics			90	98	104		77.3
Economics			50	52	80	24	75.5
Advanced U. S. History				25	22	15	20.7
Modern or American Problems						122	122.0
Mathematics							
General Math I			2		8	27	12.3
General Math II	49	72	44		72	55	53.8
Beginning Algebra	26	18	72	20	30	25	31.9
Advanced Algebra	44	40	48	28	56	43	43.2
Beginning Geometry	57	61	72	67	39	79	62.5
Trigonometry	13	24	15	30	9	19	18.3
Advanced Math					8		8.0
Economic Math							
Science							
Biology	103	131	153	130	152	139	133.3
Chemistry	24	41	34	35	35	35	34.0
Physics	25	21	32	13		13	20.8

SAMPLE D_6

Subject	Enrollment (Grades 10-12) 1961-62	1962-63	1963-64	1964-65	1965-66	1966-67	Mean
Language Arts							
Speech and Public Speaking	43	43	70	17	45	56	45.7
English	228	223	240	242	343	245	253.5
Journalism		14	15		14		14.3
Foreign Languages							
German I					38	29	33.5
German II					39	23	31.0
German III					25	33	29.0
German IV						11	5.5
Latin I		7					3.5
Latin II		14	9	9			16.0
Social Studies							
World History	84	105	104	92	94	105	97.3
U. S. History	86	81	101	102	90	89	91.5
Modern Problems	52	50	34	56	54	57	50.5
World Geography						47	47.0

SAMPLE D_6 Cont.

Subject	Enrollment (Grades 10-12) 1961-2	1962-63	1963-64	1964-65	1965-66	1966-67	Mean
Science							
Biology	100	86	97	73	99	88	90.5
Chemistry	60	47	48	58	44	33	48.3
Physics	17	13	13	20	20	14	16.2
Mathematics							
General Math II			26				26.0
Beginning Algebra		21			106	102	76.3
Advanced Algebra	46	55	76	64	58	54	58.9
Beginning Geometry	68	84	81	80	79	88	80.0
Trigonometry							
Advanced Math					24	33	28.5

SAMPLE D_7

Subject	Enrollment (Grades 10-12) 1961-62	1962-63	1963-64	1964-65	1965-66	1966-67	Mean
Language Arts							
English	174	203	231	226	222	228	214.0
Speech and Public Speaking	19	1	14	19	26	30	18.2
Foreign Languages							
Latin I		26	27				26.5
Latin II			14				14.0
Latin III	23						23.0
Latin IV	9						9.0
Spanish I							
German I					40	17	28.5
Social Studies							
World History	17	26					21.5
U.S. History	48	77	86	77		88	75.2
World History in Geog.			32	49	54	33	55.8
Modern or American Problems	55		87	84			75.3
Consumer Education		8					8.0
Mathematics							
General Math I			3	1	2		2.0
General Math II					45		45.0
Beginning Algebra	20	12	21	16	32	12	18.9
Advanced Algebra	25	21	44	38	51	38	34.9
Beginning Geometry	43	46	60	55		38	48.4
Trigonometry	10	15	17	21	26	23	18.7
Science							
Biology	77	83	81	82	78	73	79.0
Chemistry	23	35	52	30	30	34	34.0
Physics	32	25	18	14			22.25

SAMPLE D_8

Enrollment (Grades 10-12)

Subject	1961-62	1962-63	1963-64	1964-65	1965-66	1966-67	Means
Language Arts							
English	160	156	151	151	171	182	161.9
Speech and Public Speaking	33	36	31	33	36	34	33.9
Dramatics and Debate				8	8		8.0
Foreign Language							
Spanish I	40	40	36	40	52	36	40.7
Spanish II	32	25	27	18	24	32	26.9
Spanish III							
Social Studies							
World History	6	13	8	15	17	12	11.9
U.S. History	69	62	67	55	64	86	67.3
Modern Problems	58	62	58	58	51	67	59.0
Mathematics							
General Math I		4		2			3.0
Beginning Algebra	22			3	2	78	26.0
Advanced Algebra	32	32	24	26	38	54	36.0
Beginning Geometry	47		58	51	72	53	56.2
Advanced Geometry		56			7	12	28.3
College Level Math		4		8			6.0
Science							
Physical Science							
Biology	69	68	59	62	85	70	68.9
Chemistry	50	32	29	28	19	70	38.0
Physics		28	24	33	10	1	23.8

SAMPLE D_9

Enrollment (Grades 10-12)

Subject	1961-62	1962-63	1963-64	1964-65	1965-66	1966-67	Mean
Language Arts							
English	126	131	125	140	117	140	129.9
Speech and Public Speaking	17	27	27	6			19.25
Foreign Language							
Spanish I		6			17	11	11.33
Spanish II						5	5.0
Social Studies							
World History	14	44	34	39	42	44	36.2
U.S. History	42	44	54	35	51	47	45.5
Advanced Civics	27	24	33	37	14	32	27.9
Modern Problems	27	24	33	37		32	30.6

SAMPLE D_9 Cont.

	Enrollment (Grades 10 - 12)						
Subject	1961-62	1962-63	1963-64	1964-65	1965-66	1966-67	Mean
Mathematics							
General Math I							
General Math II	26	17	20	28	28	23	23.7
Beginning Algebra							
Advanced Algebra	17		24	28	33		25.5
Beginning Geometry	21	27	23		20	25	23.2
Advanced Geometry				23			23.0
Trigonometry			21			18	19.5
Science							
Physical Science	17		14	16	10	16	14.6
Biology	46		46	53	52	56	50.6
Chemistry	17		9	12		27	16.25
Physics	10		12	5	7		8.5

APPENDIX B

MEAN ENROLLMENTS IN ACADEMIC SUBJECTS
AND
RATIOS OF MEAN ENROLLMENTS IN ACADEMIC SUBJECTS TO MEAN TOTAL ENROLLMENTS FOR THE ACADEMIC YEARS 1961-62 TO 1966-67

MEAN ENROLLMENTS IN ACADEMIC SUBJECTS FOR THE ACADEMIC YEARS 1961-62 TO 1966-67

	UHS		SCHOOL								
Subject	Samples A and C	Sample B	D_1	D_2	D_3	D_4	D_5	D_6	D_7	D_8	D_9
English and Language Arts											
English	167.9	200.2	228.0	116.5	164.5	125.2	312.0	253.5	214.0	161.9	129.9
Speech and Public Speaking	35.0	74.0	14.0		20.2	19.8	18.4	45.7	18.2	33.9	19.25
Dramatics and Debate	14.8	6.5								8.0	
Journalism	16.5		11.0		13.0			14.3			
Creative Writing		17.0									
College Level English					16.0						
Remedial Reading						3.5					
English Composition							18.5				
Foreign Language											
French I	15.6	42.0									
French II	12.0	12.0									
French III	16.0										
German I	6.0				9.0			33.5	28.5		
German II					11.0			31.0			
German III								29.0			
German IV								5.5			
Latin I	9.0							3.5	26.5		
Latin II	14.2							16.0	14.0		
Latin III									23.0		
Latin IV									9.0		
Spanish I	24.2	23.25	10.8	31.0	5.4		28.8		40.7		11.33
Spanish II	9.6	13.4	16.0	14.0	12.2		27.2		26.9		5.0
Spanish III		4.7			6.5						

Subject	UIS Samples A and C	UIS Sample B	SCHOOL D$_1$	D$_2$	D$_3$	D$_4$	D$_5$	D$_6$	D$_7$	D$_8$	D$_9$
Social Studies											
World History	54.7	99.2	93.4	36.0	50.0	43.5	130.0	97.3	21.5	11.9	36.2
U.S. History	55.0	67.5	81.0	37.5	57.8	43.5	112.3	91.5	75.2	67.3	45.5
Modern or American Problems	52.3*	31.0		33.8	20.5	40.2	122.0	50.5	75.3	59.0	30.6
Sociology	37.0		56.0								
Psychology	22.25										
International Problems	25.0										
Comparative Political Systems	27.25										
Modern History Seminar	13.5										
Community Civics			14.0								
Advanced Civics or American Government		38.0	68.7		45.8		77.3				27.9
Economics		25.6	23.0	20.0			75.5				
Advanced U. S. History							20.7				
World Geography								47.0			
World History in Geography Background									55.8		
Consumer Education									8.0		
Mathematics											
General Math I			20.5	8.0			12.3		2.0	2.0	23.7
General Math II		23.5	25.4	21.0	13.0		53.8	26.0	45.0	4.0	
Beginning Algebra	7.75	14.0	26.8	26.4	16.2	14.3	31.9	76.3	18.9	26.0	
Advanced Algebra	28.3	35.8	34.8		19.9	28.2	43.2	58.9	34.9	36.0	25.5
Beginning Geometry	54.8	48.0	56.5		29.9	29.25	62.5	80.0	48.4	56.2	23.2
Advanced Geometry		29.0				25.0				28.3	23.0
Trigonometry	14.0	21.3	14.5	6.0	11.0	5.25	18.3		18.7		19.5
College Level Math	16.0	22.3		10.5	11.0					6.0	
Math Analysis				13.0							
Advanced Math							8.0	28.5			

	UHS		SCHOOL								
Subject	Samples A and C	Sample B	D_1	D_2	D_3	D_4	D_5	D_6	D_7	D_8	D_9
Science											
Biology	57.5	91.8	87.5		53.0		133.3	90.5	79.0	68.9	50.6
Chemistry	33.0	34.2	31.0		23.5	25.8	34.0	48.3	34.0	38.0	16.25
Physics	19.3	14.2	19.7		11.2	20.0	20.8	16.2	22.25	23.8	8.5
Physical Science		14.4			8.5						14.6

RATIOS OF MEAN ENROLLMENTS IN ACADEMIC SUBJECTS TO MEAN TOTAL ENROLLMENTS (GRADES 10-12) FOR THE ACADEMIC YEARS 1961-62 TO 1966-67

	UHS		SCHOOL								
Subject	Samples A and C	Sample B	D_1	D_2	D_3	D_4	D_5	D_6	D_7	D_8	D_9
English and Language Arts											
English	.963	.946	.974	1.025*	1.000	.753	.989	.926	.937	.825	.962
Speech and Public Speaking	.020	.349	.060		.122	.156	.058	.167	.079	.172	.142
Dramatics and Debate	.085	.030								.040	
Journalism	.095		.047		.079			.052			
Creative Writing		.080									
College Level English					.097						
Remedial Reading						.027					
English Composition							.058				
Foreign Language											
French I	.089	.198									
French II	.068	.056									
French III	.091										
German I	.034					.071		.122	.124		
German II						.087		.113			
German III								.106			
German IV								.020			
Latin I	.051							.012	.116		
Latin II	.081							.058	.061		
Latin III									.100		
Latin IV									.039		
Spanish I	.138	.109	.046	.270	.032		.091		.207		.083
Spanish II	.055	.063	.068	.122	.074		.086		.137		.037
Spanish III		.022			.039						

Subject	UHS		SCHOOL								
	Samples A and C	Sample B	D_1	D_2	D_3	D_4	D_5	D_6	D_7	D_8	D_9
Social Studies											
World History	.314	.469	.402	.313	.303	.344	.412	.355	.094	.060	.268
U.S. History	.315	.319	.349	.326	.351	.344	.355	.334	.329	.343	.337
Modern or American Problems	.300	.146		.294	.124	.318	.386	.184	.329	.300	.226
Sociology	.212		.241								
Psychology	.127										
International Relations	.143										
Comparative Political Systems	.156										
Modern History Seminar	.077										
Community Civics			.060								
Advanced Civics or American Government			.296		.278		.245				.206
Economics		.121	.099	.174			.239				
Advanced U. S. History							.065				
World Geography								.171			
World History in Geography Background									.244		
Consumer Education									.035		
Mathematics											
General Math I			.088	.069			.038		.008	.010	
General Math II		.111	.109	.183	.079		.170	.095	.197	.020	.175
Beginning Algebra	.044	.066	.115		.098	.113	.101	.278	.082	.132	.188
Advanced Algebra	.162	.169	.150	.138	.120	.223	.136	.215	.152	.183	
Beginning Geometry	.314	.226	.243	.230	.181	.231	.198	.292	.212	.286	.171
Advanced Geometry		.137				.198				.144	.170
Trigonometry	.080	.100	.062	.052	.066	.041	.058		.081		.144
College Level Math	.091	.105		.091	.066					.030	
Math Analysis			.062	.113							
Advanced Math							.025	.104			

	SCHOOL										
	UHS										
Subject	Samples A and C	Sample B	D_1	D_2	D_3	D_4	D_5	D_6	D_7	D_8	D_9
Sciences											
Biology	.296	.434	.377		.322	.327	.422	.330	.346	.357	.374
Chemistry	.189	.161	.133		.142	.204	.107	.176	.148	.193	.120
Physics	.111	.067	.084		.068	.158	.065	.059	.097	.121	.062
Physical Science		.068			.051						.108

* A ratio of more than 1.000 may be explained by one or more students' being enrolled in more than one English course, raising the total enrollment.

APPENDIX C

STUDENT ATTITUDE SCALE

STUDENT ATTITUDE SCALE

Directions to Students

A study is being made to help improve the understanding of student achievement under various teaching conditions. Your answers to the items in this attitude survey will contribute to this understanding.

It is important that you consider your entire school experience in marking your answers, not just isolated experiences or your relationships with individual students or teachers.

Notice the order of the numbers on the answer sheet. They go across rather than down. Please be sure that the number of your answer matches the number of the item on the scale.

Now look at the example shown here:

Example

1. I generally do an acceptable job of studying.

1 ==0== ==1== (Use only the spaces under 0 or 1)
Agree Disagree

If you agree with the above statement, blacken the space under the 0.
If you disagree, blacken the space under the 1.

REMEMBER. . . Consider your entire school experience in answering these items.

Please answer every item. Your first reaction is generally the best (Your true feeling); therefore, do not spend a lot of time on any one item. Completely blacken the space between the lines for each answer. Please use the special pencil provided. DO NOT use a ball-point pen.

Answers on this scale will not be used to make individual evaluations. Rather, they will be used for group comparisons. Please express yourself frankly.

Thank you for your cooperation.

STUDENT ATTITUDE SCALE

1. I generally do an acceptable job of studying.
2. I think school work is important.
3. Teachers are concerned about whether or not a student has friends.
4. Students are given enough freedom in selecting their school subjects.
5. Students in my school make a special effort to make new students feel welcome.
6. I can depend on a teacher to help me even if I should get into serious trouble.
7. I feel that I have a teacher who is definitely interested in me as an individual.
8. I understand the reasons behind school rules and regulations.
9. I feel that my teachers care about what students think about their subjects, their classroom work, and their assignments.
10. I do as well as my classmates in school.
11. My grades tend to encourage me in my school work.
12. The school has the information I want and need to know about colleges or other schools which offer post-high school education.
13. Teachers have talked with me about the things I do best.
14. I feel at ease when talking individually to my teachers.
15. Students in my school do not make fun and criticize other students who are different.
16. When I am in a "rut" at school, I know how to get out of it.
17. At least one high school teacher has done something important especially for me as an individual.
18. Teachers show respect and consideration for students under their supervision.
19. I feel free to discuss a personal problem with one of my teachers.

20. It is easy for me to make friends.

21. The grading system is an incentive to do my best work.

22. Teachers are aware of the opinions of students.

23. Time spent in school is worthwhile.

24. To be accepted by a group of friends is one of the best things that can happen to a person.

25. Teachers speak to me outside of class.

26. I feel that I have become sufficiently involved in school activities.

27. I can talk about my real feelings about things with one of my teachers.

28. Most high school students are interested in helping other students succeed.

29. I usually feel comfortable and at ease when I am in my classes.

30. I seldom think about quitting school.

31. I put school.work before other things.

32. Teachers let me know when I have done a good job.

33. I have several close friends at school who would stick by me even if I were in serious trouble.

34. My teachers have helped me to make new friends.

35. My teachers understand the problems of high school students.

36. My friends think that getting good grades in school is important.

37. Students respect teachers in my school.

38. My teachers try to become personally acquainted with all the students in their classes.

39. I spend enough time studying.

40. I have a friend whom I can trust to keep my secrets.

41. My teachers miss me when I am absent from class.

42. My school subjects interest me.

43. Making friends at school is easy.

44. Teachers make an effort to make new students feel welcome at school.

45. My teachers think that I will be successful in my adult life.

46. Teachers try to give students a chance to be successful in class.

47. I look forward to seeing my friends at school.

48. I like my subjects.

49. Teachers are more likely to recognize students when they have done a good job than to criticize them for their shortcomings.

50. I feel that there is a teacher or somebody that I can really talk with in school.

51. School work is easy for me.

52. My teachers have helped me feel more confident about my ability.

53. I work to learn in school.

54. I enjoy doing school work.

55. I want to keep my grades about the same as those of the rest of the members of my group.

56. School work is exciting and interesting for me.

57. My teachers help me with any problems or questions I have.

58. My teachers are willing to spend extra time and effort to help me with my school work before or after regular school hours.

59. I enjoy coming to school.

60. I hate to miss school.

61. I would be going to school whether or not I had to.

62. I think my teachers enjoy teaching.

63. My education is helping me to set and achieve my future goals.

64. It is easy for me to get along with teachers and other students.

65. I find it easy to talk with my teachers about my problems.

APPENDIX D

INSTRUCTIONS TO SUPERVISORS

INSTRUCTIONS TO SUPERVISORS

In preparing the students to complete the attitude scale, follow the procedures outlined below:

Materials will be distributed while students are assembling (see instructions below). Students should be brought to order as quickly as possible at the beginning of the period.

When ready to begin, the administrator will say:

> YOUR SCHOOL IS PARTICIPATING IN A STUDY BEING MADE BY THE UNIVERSITY OF NEBRASKA. AN EXPLANATION AND INSTRUCTIONS ARE ON THE FIRST PAGE OF THE PRINTED MATERIAL ON YOUR DESKS. IN JUST A MOMENT WE WILL READ THROUGH THE INSTRUCTIONS TOGETHER.
>
> EACH OF YOU SHOULD HAVE THREE ITEMS--A STUDENT ATTITUDE SCALE, AN ANSWER SHEET, AND A PENCIL. PLEASE CHECK NOW TO BE SURE THAT YOU HAVE ONE OF EACH OF THESE ITEMS. IF YOU ARE MISSING SOMETHING HOLD UP YOUR HAND.

After students have made this check and any necessary materials have been distributed, the instructions will continue:

> NOW WE ARE READY TO READ THE INSTRUCTIONS. PLEASE FOLLOW ALONG AS I READ THE INSTRUCTIONS ON THE FIRST PAGE.

After reading the instructions, say:

> ARE THERE ANY QUESTIONS? (Questions must be sincere, brief, and easily answered. If one does occur which for some reason cannot be handled quickly or easily, suggest to the student that you will talk to him individually after the others have started.)

Then say:

PLEASE DO NOT WRITE YOUR NAME ANYWHERE ON THE ANSWER SHEET. WHEN YOU HAVE FINISHED, TURN YOUR ANSWER SHEET OVER AND SIT QUIETLY UNTIL EVERYONE IS FINISHED. THIS IS NOT A TIMED PROJECT, SO YOU WILL NOT NEED TO HURRY. YOU MAY BEGIN.

Distribution of Materials

1. **Each student gets one pencil, one answer sheet, and one copy of the attitude scale (have extra pencils available).**
2. **Hand out answer sheets in numerical sequence. You must be able to identify each student according to the number of the answer sheet at his desk.**
3. **On the furnished seating chart, list student name and answer sheet identification number.**
4. **At the conclusion of the session, please organize answer sheets in numerical sequence.**

APPENDIX E

STANINES BASED ON NORMS DEVELOPED FOR THE NMSQT BY THE UNIVERSITY OF NEBRASKA EXAMINATION CENTER

STANINES BASED ON NORMS DEVELOPED FOR THE NMSQT BY THE UNIVERSITY OF NEBRASKA EXAMINATION CENTER

Scholarship Examinations

Composite Score		Social Studies		English		Science		Mathematics		Word Usage	
M	S	M	S	M	S	M	S	M	S	M	S
159 142	9	32 30	9	30 28	9	32 30	9	35 33	9	32 29	9
141 130	8	29 28	8	27 26	8	29 27	8	32 30	8	28 26	8
129 121	7	27 26	7	25 24	7	26 25	7	29 27	7	25 24	7
120 111	6	25 23	6	23 22	6	24 23	6	26 24	6	23 22	6
110 100	5	22 20	5	21 20	5	22 21	5	23 21	5	21 20	5
99 90	4	19 18	4	19 18	4	20 18	4	20 18	4	19 18	4
89 80	3	17 16	3	17 16	3	17 15	3	17 15	3	17 16	3
79 70	2	15 13	2	15 14	2	14 10	2	14 12	2	15 14	2
69 60	1	12 2	1	13 5	1	9 3	1	11 6	1	13 6	1

M = Score on National Merit Scholarship Qualifying Test

Nebraska scaled scores on the National Merit Scholarship Qualifying Test are based on the comparisons of scores made by 3,243 contestants who participated in both the University of Nebraska's Regents (November 1962) and the National Merit Scholarship Programs (March 1962).